



SHARPSHOOTING RIFLES OF THE AMERICAN CIVIL WAR

Colt, Sharps, Spencer, and Whitworth

MARTIN PEGLER





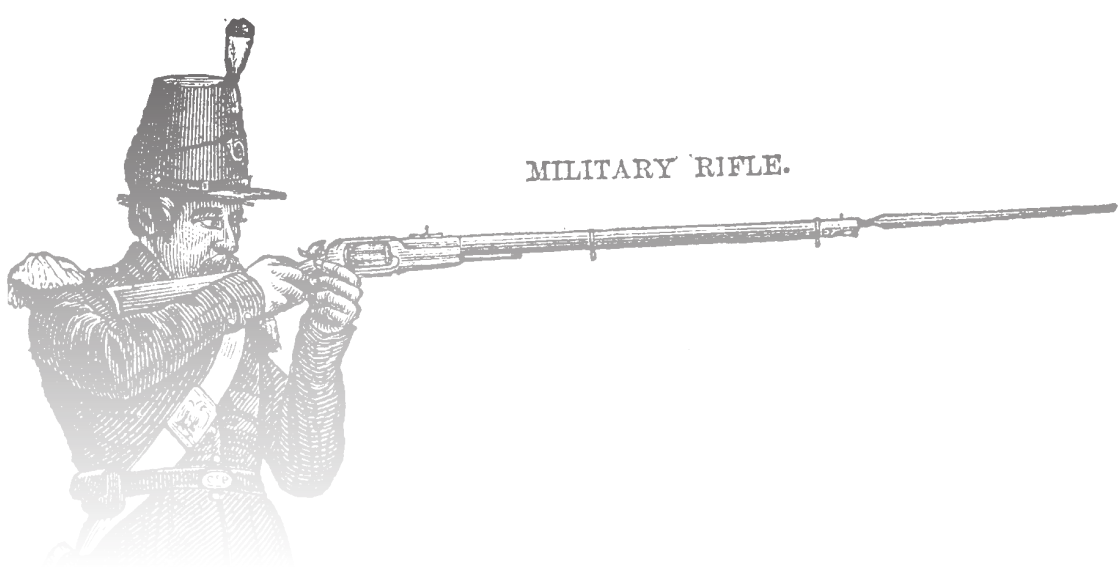
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INTRODUCTION

The American Civil War (1861–65) was a pivotal event for a multitude of reasons. Its outcome changed the course of both American and world history. The casualty figures were greater than in any other single conflict in which the United States would ever be engaged: 620,000 dead, 476,000 wounded, and 400,000 captured or missing. The war would see the introduction of new weapons technology on a larger scale than in any previous conflict. It has subsequently been described as “the first modern war” and its legacy was to reverberate through the ensuing decades.

Yet it began as most 19th-century conflicts did, with armies being deployed in traditional serried ranks in what was known as linear warfare. In essence, this was a means of fighting adopted throughout Europe from the widespread introduction of the firearm on the battlefield in the mid-17th century until the end of the 18th century. It relied on the employment of between two and four ranks of soldiers, volley firing on command, with each rank withdrawing to reload and being replaced by another rank. Normally, well-drilled troops were capable of firing three to four shots per minute.

As long as these soldiers were disciplined, this worked tolerably well with the relatively primitive smoothbore flintlock longarms in use at the beginning of the 19th century. An average military musket was not accurate beyond about 80yd and even then the target might not be struck, although a man farther down the line or beyond the selected target might be. Owing to fouling of the barrels, the bullets were normally slightly undersized to facilitate loading, which meant, to use an exaggerated analogy, that they left the barrel in much the same manner as a small golf ball being propelled along a large drainpipe – and they could exit at any angle. This was exacerbated by the inaccuracy of the spherical lead projectiles, which were inherently unstable in flight and which lost velocity extremely quickly. As a result, men were instructed not to aim, but simply



An interesting photograph of Colonel Hiram Berdan (1824–93), with Truman Head (1809–75), aka “California Joe,” behind him. Joe is holding a Berdan Sharps rifle, its double-set triggers just visible. No study of sharpshooting weapons in the American Civil War could be written without the inclusion of Colonel Berdan’s regiments and their rifles, for they were the conflict’s first purpose-raised units whose job was specifically that of sharpshooting. Berdan was a brilliant engineer and inventor and a rifle shot of international repute, being the highest-scoring competitive marksman in the United States for 15 years prior to the outbreak of the Civil War. He was also vain, boastful, jealous, timid in battle almost to the point of cowardice, and generally temperamentally unfit to lead men. The concept of raising a unit comprising purely of sharpshooters has long been attributed to Berdan, who certainly had the political connections, but over the years, there has emerged evidence that it was perhaps at the suggestion of his friend Caspar Trepp (1829–63), a Swiss former soldier who was also a competitive shooter of some repute. Whatever the truth, Berdan exerted his considerable influence in Washington, DC, and on June 15, 1861, authority was given by US Secretary of War Simon Cameron for the raising of a regiment of sharpshooters, provided it was done “without expense to the government” (Sword 1988: 10). In other words, Berdan could have his own regiment, provided he paid for it. (Courtesy Vermont Historical Society)

to level their arms and fire. Selecting individual targets was a waste of time, as the discharge of massed muskets would lay down a wall of fire not unlike that of a giant shotgun cartridge.

Fighting in this manner relied on one side being steadier under fire than the other; invariably, one side would lose its nerve and break, leaving the battlefield to the victors. If there were still signs of opposition, then closing with fixed bayonets usually decided the outcome fairly conclusively. Casualty levels were high, with a far greater proportion of men killed to wounded, the complete opposite of today’s statistics. The wounds from these close-range firefights were horrendous due to the slow-moving, large-caliber soft-lead bullets, and even relatively light wounds could prove fatal. It was the gradual introduction of the rifle, a form of longarm that could shoot accurately out to three or four times the 80yd range of the smoothbore musket, that was to result in a gradual shift in military thinking that would eventually lead to a wholesale change in the way wars were fought. This was by no means a rapid transformation – indeed, it took perhaps a century for the realization to dawn that the old linear, or close-order method of waging war was archaic. Paradoxically, in an age of mass-warfare where the soldier was not an individual but merely one of a line of muskets, it was the use of individual soldiers, riflemen, that was to preempt this change. Their early use in the Revolutionary War (1775–83) and War of 1812 (1812–15) had proven, if not decisive, then certainly effective and during the Civil War, this skill was gradually revived. Of course, to enable this to happen, there had been great advances in firearms technology.

Gunsmiths and armorers worked constantly to improve the accuracy and speed of loading of the musket. In the decades prior to the Civil War, there had been some important advances in manufacturing technology. Mass-production was already well established in the United States, which

resulted in cheaper firearms of a far higher and more consistent level of quality than before. In the 1820s, a form of percussion primer was invented that finally consigned the messy, slow, and unreliable flintlock method of ignition to the trash can of history. Percussion, or caplock, ignition conferred enormous advantages upon those who used it, as it was weatherproof and did not give away the shooter's location with a flash and pall of smoke, and if it failed to ignite, it was the work of seconds to replace it with a new charge. Even the most parsimonious of governments could not ignore the percussion system for ever, and by the late 1840s most of Europe and North America had adopted some form of caplock musket, often by means of converting stocks of existing flintlocks. This was fine in terms of providing a more reliable means of igniting the charge, but it did little to physically aid the direction in which the bullet was heading.

Rifled barrels had been in existence since at least the end of the 15th century, and had probably been invented in one of the German states. No-one will ever know who first thought of rifling the inside of a barrel to improve accuracy. It is more than likely that it was a logical progression from the practice of slightly angling the fletching on an arrow to impart spin on the shaft, which improved accuracy. It did not require a huge leap of imagination to apply this to a solid projectile, and while it certainly was not required for military purposes, it would have been of considerable use to hunters, for whom accuracy was vital. The problem with rifling a barrel was that it took extraordinary skill on the part of a gunsmith as well as a great deal of time to manufacture, resulting in a product that was so expensive it was the preserve of only the very rich.

It was the Industrial Revolution, which began in England in the late 1750s, that eventually provided the means by which gunmakers were able to harness steam-powered machinery that could automatically cut the spirals, called grooves and lands, into the bore to create the rifling. This enabled barrels to be produced that were accurate up to 300yd, and which were far cheaper than before. By the mid-1840s, most governments in Europe were re-examining the halfhearted musket conversions that they had undertaken. It was hardly surprising that in the wake of tests undertaken by assorted ordnance boards in Europe and America, rifled caplock longarms proved to be infinitely superior to any form of flintlock or caplock smoothbore muskets then in service, and wholesale replacements began to be issued to armies across Europe involving properly designed, well-made rifled muskets capable of accurate shooting to 500yd or beyond.

Initial use of these weapons by the British in small colonial wars proved them to be devastatingly effective, especially so, it must be admitted, when used against poorly armed indigenous opponents who had little concept of organized warfare or the range and power of modern firearms. In view of the lack of major European wars in the first half of the 19th century, however, there was little practical experience gained in their use. Thus, while firearms technology had moved forward with almost indecent speed, the same could not be said of military tactics, which remained firmly rooted in the 18th century. The American Civil War was to change that irrevocably.



DEVELOPMENT

The emerging rifle

ORIGINS

The American rifles that rose to prominence in the American Revolutionary War and the War of 1812 were the results of generations of development and experimentation by local gunsmiths, widely spread across the Eastern Seaboard. With the first settlers came firearms; mostly, they adhered to the military matchlock style typical of the early 17th century. With the widespread introduction of the flintlock from the 1630s came an increasing number of privately purchased commercial fowling pieces, which were generally slimmer, lighter, and of smaller caliber than traditional military longarms.

At entirely the opposite end of the scale were the heavier flintlock *Jäger* (hunting) rifles that had been brought over by émigrés from the German and Swiss states. These rifles had evolved for hunting in the dense forests of Central Europe, where large game such as deer, boar, and bear abounded. A powerful charge and the ability to be trained quickly at what could prove to be a fleeting target were essential. The men who used these rifles were valued for their ability to move quickly and stealthily around the battlefield and employed for scouting and skirmishing. Indeed, skirmishing was a highly disciplined art, with men placed about 5yd apart and 400–500yd in advance of their close-order comrades in the line infantry. It was a mix of tactics designed to test the enemy's defenses and determine their dispositions, and, when necessary, to engage them prior to a main attack being launched, or to cover a withdrawal. The earliest of these *Jäger* rifles began to be manufactured for the American market in the first decades of the 18th century and initially they followed the typical style of the military rifles.

The French and Indian War (1754–63) was the proving ground for the method by which rifled longarms were employed in warfare. This was



A commercially produced flintlock *Jäger* (hunting) rifle made in about 1740 by Ambrose Frelig. Note the short, heavy barrel, typical scrolled trigger-guard, and ornate patch-box. By the 1720s rifles such as these had been adopted by a number of German states for military use with the *Jäger* units, and in general, they could be described as of medium caliber, between .58in and .65in, with a relatively short, heavy, rifled octagonal barrel some 30in long and weighing a manageable 9lb or so. Uniquely, the stock had a raised cheek-piece to provide a firm "cheek weld" for the shooter and a patch-box inlet into the stock held greased linen or leather patches. A rear sight was fitted that was normally an adjustable flip-up "V" type, graduated to 100yd and 200yd, a rarity at a time when actually being able to aim at a specific target was unthinkable for most soldiers. (NRA Museums, NRAMuseums.com)

OPPOSITE

A half-stocked rifle made in Virginia by P. Quattlebuw. With its curly-maple stock and English-pattern lock, it was a halfway house between the old military style of muskets and a new, lighter pattern. (NRA Museums, NRAMuseums.com)

largely because of the use of irregular, locally raised American volunteers and particularly of soldiers called rangers. The employment of these rangers represented a new twist in fighting methods, which had hitherto been on a more-or-less formal footing, and they soon proved their worth. They were fast moving and lightly equipped, but their accurate fire was deadly. It should be stressed that there was no single pattern of longarm then in use by the rangers; they varied widely in type, but were mostly of the lighter flintlock pattern, many being rifled.

The rangers and their longarms were to be employed in even greater numbers after war broke out between Britain and the American colonists in 1775. Although most of the militia raised to fight the British used military-issue muskets, an increasing amount of fighting was of the type seen in the earlier French and Indian War, a conflict of movement, ambush, and skirmish. The irregular units raised were comprised of rangers and frontiersmen who flocked to join the army of George Washington and within their ranks was to be found a more typical pattern of American rifle that had begun to appear in significant numbers from around the beginning of the 18th century.

With regard to the accuracy of the early rifles, this was largely dependent upon the ability of the shooter and it is a very subjective topic, but was typically 200–300yd in the hands of a good shot, although it could be considerably more in the hands of an expert. Frequently, though, the riflemen were used as an adjunct alongside the infantry, in a situation that placed them at a considerable disadvantage, for two reasons. First, a rifle took considerably longer to load than a smoothbore, with perhaps two shots per minute being possible, against the four of a common musket. Secondly, American rifles were not equipped with any form of bayonet, making the riflemen vulnerable to a sudden frontal attack, against which they could not defend themselves.

As the Revolutionary War continued it was clear that the rifle had advantages over the musket, but that the riflemen needed to be deployed with care. Where they were used properly, they could and did exact a heavy toll on the opposing forces; Private Tim Murphy, a Pennsylvanian rifleman serving under Colonel Daniel Morgan, famously shot and killed Brigadier-General Simon Fraser, effectively halting a British counterattack. As a belated response, the British even raised their own rifle company, under Major Patrick Ferguson, issuing them with the expensive but effective breechloading rifle that bore his name; ironically, Ferguson was



shot by American riflemen during the Battle of King's Mountain (October 7, 1780). For the officers, NCOs, and ordinary soldiers who came under aimed fire, the effect was paralyzing, as one British officer later admitted: "The cannon and musket balls playing upon our ranks, we cared not for; but to know that every time a rifle was levelled towards us ... one of us must surely fall; that the messenger of death drove unerringly to its goal, to know this and still march on was awful" (quoted in Pegler 2007: 81).

When properly deployed, riflemen could sometimes prove decisive in battle. In 1781 at Cowpens in South Carolina, Brigadier General Daniel Morgan's force faced 1,200 British Regulars commanded by Lieutenant-Colonel Banastre Tarleton (1754–1833). Morgan's men were mostly untrained militia, but he had some 150 locally recruited sharpshooters, whom he placed in front of his main force, with orders to "Aim for the epaulettes" of the British officers and fire no more than twice before retiring, as Morgan well understood the sharpshooters' vulnerability to bayonet charges. When the smoke cleared, the British had lost more than 100 dead, 229 wounded, and over 600 captured. The dead included no fewer than 39 officers, almost the entire complement. The Americans lost just 12 killed.

So what was the outcome of using riflemen on the battlefield? They fought in relatively small numbers and when properly used, as skirmishers, picket men, and marksmen, they could certainly play a useful part in battle, even if that part had to be carefully orchestrated. In truth, though, their perceived impact was out of all proportion to their actual effect. If there was a problem, it was in ensuring that the hard-learned lessons of using riflemen were remembered.

ABOVE

A Miller flintlock rifle made c.1780 by Mathias Miller of Easton, Pennsylvania. Over the years the form evolved, the rifle's heavy military stock becoming slimmer and more graceful, with locally obtained woods such as burr or black walnut and curly maple being used. The shape altered, too, with a thinner stock that frequently had a gentle droop at the wrist, making sighting more instinctive, and a distinctively curved buttplate that fitted snugly into the shoulder. Patch-boxes were often inlet into the stocks. The result was an accurate, strong weapon that could outshoot the military musket at any range, helped by using a carefully measured powder charge, well-cast bullets, and patches of linen or thin leather. Patches were a vital part of ensuring accuracy in muzzleloaders as they helped seal the bore, and reduced the escape of propellant gas past the bullet, called windage or blow-by. They also enabled the projectile to grip the bore as it exited, thus steadying it and aiding accuracy. The difference this made was striking; in competition, shooters were noted as being able to strike a cast-iron pan hanging in a tree at distances of up to 150yd with a smoothbore musket, about double the range of a common musket. (NRA Museums, NRAMuseums.com)



THE WINDS OF CHANGE

In Europe, the first decades of the 19th century were dominated by the continuing war against Napoleon. Remarkably, at least Britain appeared to have learned some lessons from facing the colonial rangers and riflemen. In 1800 an “Experimental Corps of Riflemen,” the 95th Regiment of Foot, was raised specifically to provide sharpshooters, scouts, and skirmishers. These soldiers were radically different to the infantry of the day, for they carried a new pattern of rifle, the first to be issued on any scale within the British Army. As had their counterparts in America, the British riflemen soon developed a fearsome reputation for their shooting skills, the French calling them *cafards* or grasshoppers, because of their green uniforms and unerring ability to pop up suddenly, shoot, and disappear just as quickly.

The US Congress was not oblivious to the success of its riflemen during the Revolutionary War, and in 1808 they raised the 1st Regiment of Riflemen; three further regiments were formed subsequently. During the War of 1812, they campaigned successfully against the British for three years, with detached companies being allocated to other commands and used where needed, a foreshadowing of the methods adopted for the deployment of sharpshooters in the Civil War. The US rifle regiments sensibly adopted the British rifle regiments’ practice of wearing practical green jackets, but in line with US military doctrine, they had to be armed with a longarm capable of mounting a bayonet and it was fortunate for them that one existed. The Harper’s Ferry Model 1803 flintlock rifle had a .54-caliber, 33in barrel, and by 1807 some 4,000 had been manufactured. On April 27, 1813, it was first carried into action by the 1st Regiment of Riflemen at the battle of York, and all subsequent rifle units were equipped with it. Careful patching of the balls enabled the riflemen to shoot far more accurately than the average soldier, albeit at a far slower rate. Crucially, the rifle was capable of mounting a socket bayonet. It provided sterling service in the hands of the rifle regiments, but in the long run this counted for little. With the end of the war, Congress no longer had any requirement for the rifle regiments, and they were disbanded by 1821. After the war the need for such specialists also faded in the British Army, and in Parliament questions were even asked about the wider moral implications of employing common riflemen to target officers, who were men of higher social rank.

Following Napoleon’s defeat in 1815, an uneasy peace descended on war-weary Europe. Armies were reduced to peacetime levels and inevitably, expenditure on weapons was cut. Although it was not recognized at the time, the days of the flintlock musket were fast becoming numbered. Experimentation had continued unabated in the world of

A Harper’s Ferry Model 1803 flintlock rifle. It has many similarities to the earlier *Jäger* rifles, being short-barreled at 33in, with an inlet patch-box and slightly scrolled trigger-guard. In total, almost 20,000 were manufactured. (NRA Museums, NRAMuseums.com)

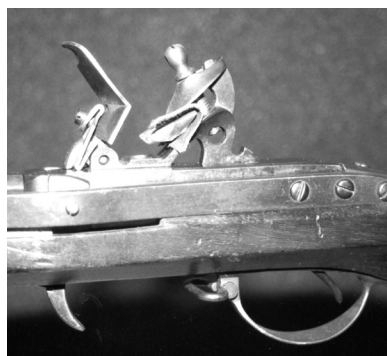


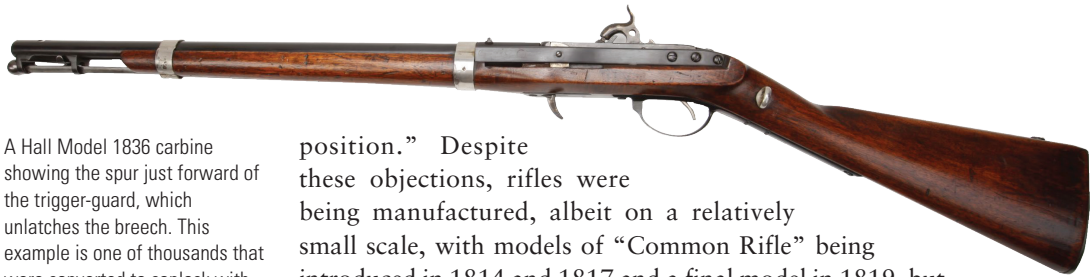
commercial gunmaking to improve accuracy, increase range, and create a better means of igniting muskets and rifles. Much work had been done in trying to create propellants that were better than black powder, with its corrosive residues, pall of telltale white smoke, and aversion to damp. Fulminates had been tried, often with terminally messy results, for they were both powerful and unpredictable, traits not desirable in a firearm. But as a priming compound, fulminate of mercury did show great promise and in 1805 a Scottish minister and amateur chemist, Alexander John Forsyth (1769–1843) had produced a tiny priming flask that contained fulminate. This could be fitted to any existing flintlock and it generated considerable interest, but it was to be an expatriate British artist named Joshua Shaw (1776–1860), who had emigrated to America in 1817, to perfect the idea. After some experimentation, he created a simple copper cap, filled with fulminate that sat on top of a hollow nipple. The beauty of this system was that the nipples could be retrofitted to existing muskets, and when a cap was placed on a loaded musket, it ensured the charge remained dry and instantly usable, unlike the flintlock, which was capricious in its function in wet or windy weather. The system simply could not be ignored, even by the most obdurate ordnance boards, and by the mid-1840s most armies had, or were in the process of, converting their muskets to caplock ignition.

Of course, the simplest and cheapest method was simply to modify existing stocks of weapons – understandable when one appreciates the sheer numbers of stored arms. After the War of 1812, there were such disparate numbers and types of weapons stored in federal and state arsenals across the United States that defining exactly what was usable and what was not was a nearly impossible task. It would require a strong will on the part of the US Government to introduce a specific type of longarm in the face of a dithering Ordnance Department that could not agree on exactly what was required, or even whether a change was needed at all.

Commercial rifle development continued after the War of 1812, but the rifle's slowness in loading was seen as a major stumbling block to military use, as was outlined in a US Ordnance report to Congress in 1819: "The difficulty of loading this arm is the great objection to its more general introduction. The force required to drive a patched ball down the rifle barrel, cannot be advantageously applied in any constrained

Two images of a Hall Model 1819 flintlock breechloader showing the breech closed (left) and open (right). During the US–Mexican wars, at least one US cavalryman saved his own life by using a loaded, dismantled cylinder as a pistol to hold off Mexican forces. There were problems with the Hall, of course. The rifles were expensive and slow to manufacture, and suffered from trouble with blowback – gas-leakage from the breech face. The Ordnance Department, despite all evidence to the contrary and having placed an order for them, was never entirely convinced that the Hall was any better than a conventional muzzleloading rifle. As a result, the Hall was invariably used in the field as a muzzleloader, which totally negated any advantages it offered. (Author's Collection)





A Hall Model 1836 carbine showing the spur just forward of the trigger-guard, which unlatches the breech. This example is one of thousands that were converted to caplock with .69-caliber barrels. By the time the Civil War broke out, most flintlock Halls had been converted in this way. There are no existing records of their use by sharpshooter units in the Civil War, but undoubtedly some of the 23,500 rifles produced must have found their way into their hands. (NRA Museums, NRAMuseums.com)

position.” Despite these objections, rifles were being manufactured, albeit on a relatively small scale, with models of “Common Rifle” being introduced in 1814 and 1817 and a final model in 1819, but the inescapable reality was that breechloading was the answer to overcoming the slowness of loading a rifle. The problem was that if the deeply conservative Ordnance Department was barely able to accept the concept of the rifle, then breechloading clearly was beyond the pale.

Yet a solution already existed, in the form of a remarkable flintlock breechloader patented in 1811 by John Hancock Hall (1781–1841). Its pivoting breech-block was light years ahead of anything else, and it even attracted enough interest from the Ordnance Department to warrant tests at Harper’s Ferry, Virginia in 1818. A .52-caliber Hall could fire three shots per minute, three times the speed of a conventional muzzleloading rifle, as well as achieving a slightly higher level of accuracy. Ingeniously, the barrels were counter-bored $1\frac{7}{16}$ in from the muzzle, giving the illusion that they were smoothbored. In fact, this was a sensible precaution to permit easier muzzleloading if the fragile unlocking catch was damaged, preventing the breech from opening. Against all expectations, the Ordnance Department issued an initial contract for 1,000 Hall rifles in 1819.

It was not until 1841 that the Ordnance Department finally made the decision to adopt its first caplock rifle, the .54-caliber Model 1841 Mississippi, which bore more than a passing resemblance to the earlier *Jäger* rifles. Strangely, the early Model 1841s had no provision for fitting a bayonet! Although at the time it was referred to variously as the Windsor or the Whitney rifle (referring to the manufacturers), it gained its most popular nickname as a result of its use by Jefferson Davis’s Mississippi Volunteers during the US–Mexican War (1846–48). The decision to adopt the Model 1841 could hardly be described as a great technical leap forward, but it was at least a starting point and hundreds were to see use subsequently in the hands of sharpshooters on both sides.

In addition, large numbers of Model 1822, Model 1835, and Model 1840 flintlock muskets were converted to caplock. In 1842 the United States adopted its first caplock musket, the Springfield Model 1842. In fact, the Model 1842 was not rifled, and the decision could hardly be described as radical, but it was at least a starting point.



A Model 1841 Mississippi “Yaggar” rifle. Converted to accept the .58-caliber Minié bullet, some 75,000 of these rifles were manufactured; many saw service in the hands of Civil War sharpshooters. (NRA Museums, NRAMuseums.com)

MINIÉ'S MIRACLE

While investigating the development of the sharpshooting weapons used in the Civil War, it is important to remember the crucial significance of the projectiles they fired. For centuries the standard projectile was the lead ball. Often poorly cast, with an inbuilt weight bias due to air pockets or an untrimmed sprue, the ball also loses velocity very quickly (spherical shapes are not aerodynamic) and if of a large caliber – and most military bullets were – it required a very hefty powder charge to propel it any reasonable distance. To enable the ball to be easily and speedily loaded, it was normally undersized to slip easily down a fouled bore, which resulted in windage. Gunmakers had struggled for decades to overcome these deficiencies; patching the ball helped, but did not solve its inherent ballistic shortcomings.

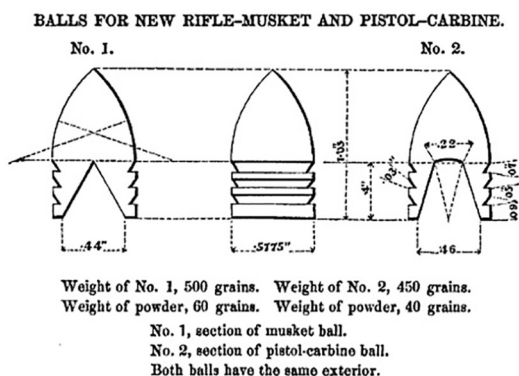
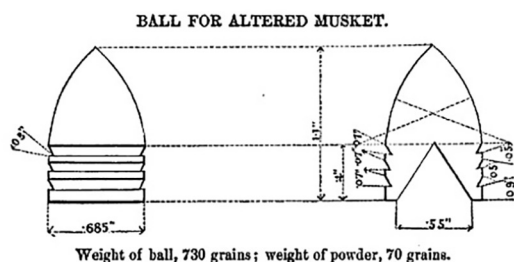
A minor breakthrough came from France in the early 1820s (coincidentally at the same time as the introduction of the percussion cap) in the form of a hollow-based conical bullet invented by Captain Henri-Gustav Delvigne (1799–1876). His idea unfortunately involved an undersized chamber at the rear of the bore; ramming the bullet onto the step that resulted caused it to deform and grip the rifling. Although an improvement on the spherical ball, a deformed bullet was never going to provide the accuracy that was required, and the weapons firing them proved a nightmare to clean.

Another idea, propounded some 20 years later by Captain Louis-Étienne de Thouvenin (1791–1882), effectively reversed Delvigne's concept. Instead of drilling a chamber into the breech of a rifle, Thouvenin had a steel spigot placed in the breech and the bullet was forced onto it, expanding the skirt. His pillar-breech or "tige" system found more favor, and many tige rifles were later to be purchased by the United States and see service during the Civil War. While they too were problematical to keep clean, it was a considerable step in the right direction, but it was not a solution.

It was due to the efforts of yet another French officer, Captain Claude Étienne Minié (1804–79) that a viable solution appeared. As tends to be the case with the best ideas, it was simplicity itself, for instead of using a mechanical method to force the bullet to expand, he used the hollow base of a conical projectile to house a thin steel cup. When ignited, the pressure wave of the propellant gas forced the cup up into the body of the bullet, simultaneously expanding the skirt and pushing the bullet up the barrel. Although beset by teething troubles – the cup sometimes blew straight through the bullet, leaving the bulk of it firmly adhering to the bore – its

A Springfield Model 1842 caplock musket. Despite the Model 1842 being obsolete by the time the Civil War started, many units, particularly Confederate, were still armed with it at war's end in 1865. (NRA Museums, NRAMuseums.com)





The Burton patent Minié Mini, showing its distinctive grease grooves. (Author's Collection)

firm grip of the rifling aided accuracy, eradicated windage, improved velocity and stability over longer ranges, and materially helped to clear fouling from the bore. The new bullets provided good accuracy out to 250yd and tolerable accuracy at nearly twice that distance. There were problems; in particular, the deep rifling grooves affected the expansion of the Minié bullet, causing variable accuracy and leading of the bore. This was easily addressed by manufacturing bores in which the rifling was of the gain-twist pattern, reducing in depth as it progressed up the bore. The actual shape of the bullet was not ideal, either, for it was conoidal in form. In other words, the sides were of a continuous curve with no parallels, which meant that when fired it tended to have a bias to one side as it exited the muzzle, which affected long-range accuracy. The British Board of Ordnance adopted a bullet shape that was cylindro-conoidal, with parallel sides that provided a

firm gripping surface for the rifling and thus eliminated the bias.

Various bullet designs had been submitted and tested, but in 1852 the Board of Ordnance settled on an improved Minié pattern designed by Robert Pritchett (1828–1907), a London gunmaker. Compared to its predecessors, it was of unusually small size (.577in) and with a carefully calculated ratio of skirt length and thickness to the depth of the hollow in the base, it proved to be extremely accurate and simple to load as well as straightforward to manufacture. Part of the reason for this radical departure from the huge projectiles previously considered necessary was the effect these higher-velocity bullets had on the human body. Having settled on a caliber and an acceptable bullet pattern, the Board of Ordnance turned their attention to finding a suitable replacement for their stopgap conversion muskets.

Meanwhile, the US Ordnance at Harper's Ferry had been following these ballistic tests with considerable interest and tested their own tige rifles with various forms of expanding bullets. To their credit, they admitted that the old muskets were now outdated: "Any arms that were constructed upon the plans of these new rifled arms were ... found to be capable of making close shooting at a distance of 500 yards, and to be effective in firing at 1,000 yards. The choice between them is, therefore, to be determined chiefly to the facility and convenience of loading and using the arm" (Senate Documents 1855–56).

In short, the US Ordnance wanted Minié rifles, but were not in any agreement about what type. What was clear was that they disliked the use of the steel cup, and the issue of finding a solution was passed to Harper's Ferry Master Armorer James H. Burton (1823–94), who in 1850–54 began a series of meticulous ballistic experiments on the Minié bullet and

proved that a simple solution was best. He abandoned the cup entirely, deepened the cavity, and placed wide grooves around the exterior of the skirt which could be pre-greased, thus materially aiding loading and resolving almost all of the drawbacks of the original design. A soldier could now load a rifled musket as fast as a smoothbore and the Minié-Burton bullet could be fired by any existing arm, such as the recently adopted Model 1842 caplock musket.

It was further decided that the standard longarm caliber was to be .58in, and in 1855 many of these muskets began to be converted. One side-effect of this was the requirement for a proper rear sight in place of the standard “V” notch, so a leaf-sight graduated to 100yd, 300yd, and 500yd was fitted, as was the all-important bayonet lug. Some idea of the scale faced by the Ordnance in converting the US armies’ muskets to a new caliber can be gauged from the fact that at Allegheny Arsenal *alone*, a contract had to be raised just to supply almost one million new cartridges and new plant introduced to enable production to commence. Of course, converting old smoothbore flintlocks to percussion ignition was all well and good, but it ignored the obvious fact that after four years of tests by the Ordnance Board it had been proven irrefutably that rifled arms were superior in performance to anything else currently in military service. Colonel Henry K. Craig, the highly respected Chief of Ordnance for the vital years 1851–61, wrote in his annual report for Congress in 1854:

The best results were obtained from the ... Minnie ball, in being so made as to expand by the force of powder without the aid of an iron culot or cup. The results stated to have been obtained in foreign service, and those derived from our own limited experiments, indicate so great a superiority of the rifled bore with the elongated expanding ball, that it seems not improbable that the use of smooth-bored arms and spherical balls may be entirely superseded.

How right he proved to be.

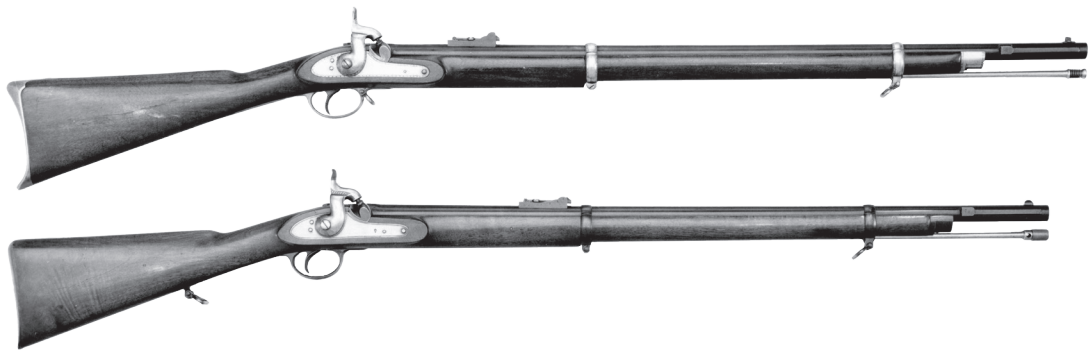
A British Barnett-contract Pattern 1853 rifled musket and bayonet. The quality of longarms supplied to both sides during the Civil War varied, but generally the finest came from the Birmingham or London gun trade. There is a modern misconception that large quantities of Government-manufactured Enfields were shipped to the Union and Confederate armies; but while it was second only to the Springfield Model 1861 in terms of numbers (probably in excess of 900,000), these were all, without exception, supplied by the commercial gun trade. (NRA Museums, NRAMuseums.com)

FOREIGN SHARPSHOOTING WEAPONS

British military patterns

Britain’s Board of Ordnance had, inevitably, elected to save as much money as possible by converting stocks of flintlock muskets to caplock ignition, and this process began in 1838, with the issue of a converted





Two copies of the Enfield Pattern 1856 two-band short rifle. The top rifle is a Liège-manufactured example, while the lower is from the London Armoury Company. Both saw service in the Civil War. Aside from its 6in-shorter barrel, which required only two securing bands, the Pattern 1856 differed internally from the Pattern 1853 in having five-groove rifling, which resulted in an exceptionally accurate weapon. In fact, this short rifle proved hugely popular during the Civil War, being less likely to drag its barrel in the dirt or snag on undergrowth yet being as accurate as the three-band rifle out to around 800yd, while weighing 8oz less. A naval rifle, the Pattern 1858, was also manufactured; this had a thicker-than-normal barrel, further aiding accuracy, although for what purpose this was required by the Royal Navy is unclear. In 1861, because the two-band rifle had proven to be so effective, it was adopted as the British forces' standard short rifle.
(© Royal Armouries)

smoothbore musket, the **Pattern 1839**, and in an attempt to use up large stocks of surplus parts a final conversion, the **Pattern 1842**, which was the last of the old regulation smoothbore muskets to be produced; some of these were to find their way to the United States a few years later. Although of caplock type, they still utilized the large .76-caliber bores of the traditional flintlock muskets. They were never going to be more than a stopgap measure, and the Board of Ordnance knew it, so while The Rifle Brigade – as the 95th Regiment had been redesignated in 1816 – was issued in 1840 with a new caplock rifle, the **Brunswick**, the rest of the British Army continued to make do with an assortment of smoothbore muskets whose performance was woeful.

The Board of Ordnance slowly continued with testing differing patterns of rifles at Woolwich Arsenal through the late 1840s and belatedly concluded that a major change was needed. The result of this decision was to have a profound effect on the future of warfare, and the Civil War in particular, for in 1851 the Board of Ordnance sanctioned the manufacture of the “Regulation Minié Musket.” With a 39in barrel of .702 caliber, the **Pattern 1851** weighed a shade under 10lb and was fitted with a barrel that had gain-twist four-groove rifling in .577 caliber. It fired a 530-grain Pritchett-type conical bullet propelled by 58 grains of powder, which produced a mediocre velocity of only about 950ft/sec. Although substantial quantities of Pattern 1851 rifled muskets reached British troops in the Crimean War (1853–56), the weapon was found to be lacking in both range and accuracy, mainly due to the large caliber and bullet design.

The Pattern 1851 design clearly needed improving so the Board of Ordnance re-examined the performance of the Minié weapons in the wake of the Crimean War. It was obvious that a major stumbling block was the caliber, so a reduction to .577in was recommended. Instead of pinning the barrel to the stock, it was rigidly secured with three screw-clamped steel bands – hence the soubriquet “three-band” rifle – and its weight reduced to 9lb 3oz. A simple socket bayonet was supplied that locked around the front-sight block. In order to utilize the accuracy of the new rifle properly, a ladder-pattern rear sight was fitted. This had a stepped base that could be adjusted for ranges of 200yd, 300yd, and 400yd, after which the leaf could be raised vertically and adjusted to

900yd; later models were calibrated to 1,000yd. This new arm, the Enfield **Pattern 1853** rifled musket, was approved in late 1853, with the first issue arriving in the Crimea in February 1855. It was a great success, proving to be a hardy weapon much superior in accuracy to the Pattern 1851.

The use of “three-band” rifles in several colonial campaigns highlighted the fact that there was a requirement for a shorter rifle. There already existed a rather bewildering number of short types including artillery and cavalry carbines and Indian Service muskets, but a compact rifle with a range capability similar to that of the three-band rifle was deemed necessary. Thus the **Pattern 1856** Short Rifle was issued to regimental sergeants, as well as to rifle regiments for skirmishing.

Other British rifles

There were many other makes of British longarms supplied, particularly to the Confederacy, but as our prime concern is rifles for sharpshooting, the list can be narrowed down considerably. Without doubt the most famous was the **Whitworth** rifle which was, on the face of it, a curious choice for several reasons. It was the brainchild of a brilliant engineer, Sir Joseph Whitworth (1803–87), who was renowned not for small arms, but very large artillery pieces. Whitworth used a unique form of hexagonal-polygonal rifling. Instead of requiring the projectile to grip the rifling of the barrel, the twist of the Whitworth’s bore imparted spin as the hexagonal bullet was fired. Production began in 1857 and the method of barrel manufacture was revolutionary. The very high-quality cast steel used was machine-compressed while still in a pliable state. This created

An exceedingly rare ‘scoped Confederate Whitworth rifle in the collection of Denny Pizzini, with its bullet mold. The ‘scope is adjusted by means of thumbscrews on the stock, the front having a graduated elevation plate in yards. The side-mounted sight is very low, however, and would make aiming the rifle awkward until the shooter was used to it. (Author’s Collection)



an extremely hard bore that could handle the firing stress of large powder charges far more efficiently than an ordinary steel barrel, and also greatly lengthened the bore life.

Whitworth firmly believed, with some justification, that his design was superior to that of the recently adopted Pattern 1853 rifled musket, which showed some variability in long-range accuracy tests when in 1857 trials were held at Woolwich Arsenal to determine whether the Whitworth was a suitable replacement for the Enfield. It certainly proved to be the case that the Whitworth was consistently able to outperform the Pattern 1853 at long ranges. The Enfield failed to strike a 12ft×12ft target at ranges beyond 1,400yd, but the Whitworth was able to place all of its bullets into the target at 2,000yd, a quite extraordinary achievement. There were reasons for this of course; the Whitworth's barrel, phenomenally expensive to make, had a tight 1:20in twist, and the ammunition was manufactured to the highest standards of any commercial cartridge in the world, as described in the *Engineer Magazine* of December 1857: "The cartridge was made with great care, the bullets of compressed lead [swaged] 1½ inches long and of precisely uniform weight; the charges of powder precisely of the same weight and of a uniform size, finely glazed; the cartridge wrapped in parchment and coated with paraffine."

To a certain extent such trials were unfair, for Whitworth's rifles and ammunition were made to standards to which military arms simply could not aspire. While the Whitworth did outperform the Enfield, it proved to be problematical in other areas. When it came to cleaning, the powder residue built up heavily in the bore and proved to be very hard to clean out properly. There was also the small matter of cost, a Whitworth being four times the price of the Enfield at £12/6s compared to £3/5s/1d. As a result the Whitworth was not adopted for British military service, but a number were supplied to the Confederacy. Exactly how many has always



The unique hexagonal rifling on the barrel of a Whitworth rifle.
(Author's Collection)

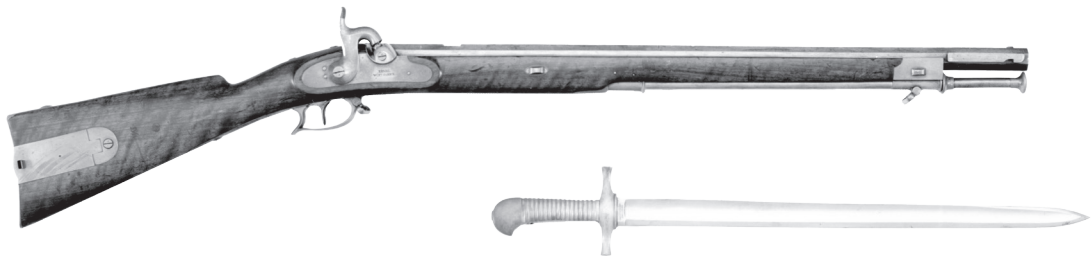


been a contentious point, but in view of their huge cost, the likely figure is small. Numbers as low as 50 have been espoused, but around 200–250 rifles seems plausible. A standard Whitworth cost the Confederacy \$600 (\$11,000 in 2016) and the Holy Grail, a cased Whitworth with optical sights, cost double that figure. Ammunition also had to be specially imported, as it was virtually impossible to manufacture in the field without a special mold, and 1,000 rounds cost about \$100 (\$1,900 in 2016).

It was little wonder that only the very best sharpshooters acquired a coveted Whitworth, and Confederate sharpshooters were often allocated them after stiff shooting competitions. Private Samuel R. Watkins of the 1st Tennessee Infantry described how his regiment's sharpshooters competed by shooting at a small bullseye at 500yd distance: "Every shot that was fired hit the board, but there was one man who came a little closer to the spot than any other and the Whitworth was awarded to him" (Watkins 1882: 22). Daniel Sawtelle, a Confederate sharpshooter, wrote of seeing his first Whitworth, the only one issued to his brigade: "Having nothing to do, I went down across a field where Ben Powell, with his Whitworth rifle was sharpshooting. There had been a number of Whitworth rifles (with telescopic sight) brought from England, running the blockade. In campaigns he posted himself wherever he pleased, picking off the enemy's men. I shot the gun a few times. It kicked powerfully" (Sawtelle 2001: 70–71).

Some mention should also be made of the **Kerr** rifle, often dubbed "the poor man's Whitworth." Devised by James Kerr, the superintendent of the London Armoury Company, it was a near-identical reproduction of the Pattern 1853, insofar as the lock and stock parts were interchangeable, but the barrel was 37in long, 2in shorter than the Pattern 1853, and it had six-groove ratchet rifling which was straight at the breech, becoming 1:20 at the muzzle. In addition, its caliber was a reduced .451in. The bullet weighed 530 grains and accuracy was generally regarded to be as good as, if not superior to, that of the Enfield. Research has shown only 46 Kerr rifles to have been supplied to Confederate forces, of which 26 were used by the Army of Tennessee within Major General Patrick Cleburne's 1st Kentucky (Orphan) Brigade, which makes them even rarer than the Whitworth (*MLAGB* Spring 2013).

Small numbers of highly specialist rifles, such as this very fine-quality Charles Ingram Volunteer Pattern .45-caliber weapon, found their way across the Atlantic. This example has a sliding safety on the lock and uses Whitworth rifling. Ingram was a Scottish gunmaker and also a very skilled rifle shot. Produced for shooting matches in Britain, this weapon was extremely accurate and made an excellent sharpshooting rifle. (NRA Museums, [NRA Museums.com](http://NRAMuseums.com))



A German-made .67-caliber "Yagger" rifle, converted from flintlock to caplock, with sword bayonet. Thousands of similar surplus rifles were sold to the Confederacy during the Civil War. (Author's Collection)

Longarms from mainland Europe

Some mention must also be made of the tens of thousands of longarms manufactured in mainland Europe and supplied to both North and South during the Civil War. Thousands of unlicensed copies of the Enfields, mostly manufactured in Liège, Belgium, were supplied, products of the colossal arms industry that existed there. These rifles generally exhibited a very high standard of workmanship and performed as well as the British-manufactured weapons, although there were certainly rogue manufacturers who produced substandard examples; several exist in the collection of the Royal Armouries that have spurious British contractors and proof markings and "Tower" engraved locks. Many other rifles were supplied, notably from Germany and Austria, some of which would now be described as "no longer fit for purpose." Such was the desperate need for arms that almost anything that could fire a bullet was deemed acceptable, certainly by the Confederacy.

US SHARPSHOOTING WEAPONS

Springfield rifled muskets

In the United States, there were also moves to introduce a more up-to-date longarm for general issue to line infantry. In the wake of the adoption of the Minié-Burton bullet, the conversion of old Model 1841 rifles and Model 1840 muskets had proved inadequate and the addition of an adjustable long-range rear sight was but a stopgap solution to an ongoing problem. The Ordnance Board argued incessantly about what exactly should replace the old longarms. Influenced to a great degree by the British trials, Harper's Ferry Arsenal subsequently tested rifles of both .54 and .58 calibers, which proved to be significantly easier to shoot and less punishing than a .69-caliber Minié. Finally, in 1855, Colonel Craig, the venerable Chief of Ordnance, produced a report outlining the Ordnance Board's decision: "A caliber of .58 inch is proposed for all our small arms ... All barrels of 58 caliber to be rifled with three grooves, decreasing in depth. It is recommended by the board that our present rifle be enlarged to .58 inch" (Senate Document No. 60).

There was to be a new **Springfield Model 1855** "long-barreled rifle musket" as the primary infantry longarm; these rifles were to have



Maynard patent primer locks fitted, which contained a roll of caps not unlike those used in modern toy pistols and which had proven to be reliable in field tests. Of .58 caliber and weighing 9lb, the new arm had a 40in barrel with three-groove gain-twist rifling and a rear sight graduated to 500yd. The Enfield bullet fitted both the British and the US rifles, but the Springfield bullet was fractionally too large for the Enfield. In tests the Springfield Model 1855 proved to be not quite as accurate as the Enfield, being deemed “competent” out to 500yd where it could place seven out of ten shots into a man-sized target, although this was undoubtedly due to its lack of a fine-adjustable rear sight and the long-range ballistic stability of the Enfield.

The Springfield Model 1855 rifled musket, in its early form with Maynard tape primer. Although not as highly regarded as the Enfield, it was nevertheless a competent sharpshooting rifle. (NRA Museums, NRA Museums.com)

Up to the cessation of production in 1860 some 60,000 Springfield Model 1855 muskets were manufactured, and when war broke out, there were some 20,000 in service. Its introduction officially signaled the death-knell of the old smoothbore muskets in US service (albeit not in actual practice), and the US arsenals of Harper’s Ferry, Frankford, and Springfield began their manufacture, with the first of the new rifles being supplied to troops in the western territories toward the end of 1856. In the interim, thousands of old longarms, mostly Model 1816 and Model 1822 flintlocks and Model 1841 and Model 1842 caplocks, were to be converted to the new specification. It was somewhat ironic that in early September 1862, a Confederate force under Major General Thomas J. “Stonewall” Jackson (1824–63) captured the garrison at Harper’s Ferry; all of the manufacturing plant was dismantled and taken to Fayetteville, North Carolina, where the rifles produced provided a vital core of longarms for the Southern armies.

Meanwhile, there was some dissatisfaction with the performance of the Springfield Model 1855. Under combat conditions the Maynard tape primer system proved wanting, either jamming or failing to ignite, and the cost of manufacture was high. There were insufficient weapons to go around and demand was such that their leisurely rate of production could not keep pace. As a result, in 1860 the Ordnance Department proposed a new longarm, the **Springfield Model 1861**, with a simplified caplock mechanism, capable of being mass-produced on a huge scale (about 1 million were eventually made). This Springfield rifled musket was of the



The simplified Springfield Model 1861 rifled musket, without the Maynard tape priming mechanism. (NRA Museums, NRAMuseums.com)

same physical specification as the old Model 1855, but was \$5 cheaper to manufacture, each costing the Federal Government \$20 (\$428 in 2016).

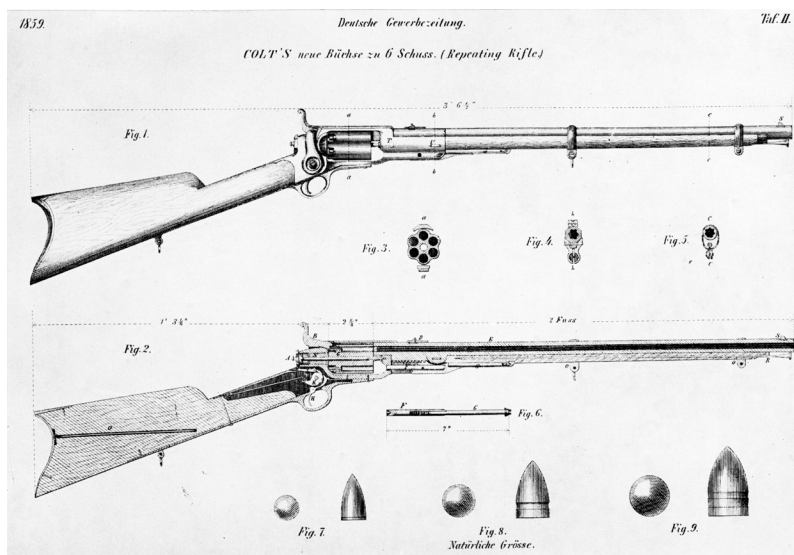
Springfield alone could not meet demand for the Model 1861, so some 20 private contractors were given contracts for manufacture. The largest of these was Colt, which improved on many minor details such as the hammer design and barrel bands; these improvements were in due course adopted by the Ordnance and incorporated in the final incarnation of the weapon, the **Springfield Model 1863**. This was also produced in large numbers, around 700,000, but aside from being marginally easier to make, it was not a huge improvement over its predecessors and it was the final muzzleloader to be made by Springfield. It did, however, have a much-extended service life, as it later proved to be easy to convert to metallic cartridge use, and after 1865 the later Springfields became the basis for the US Army's Allin conversion single-shot rifles.

The Colt Model 1855

A Colt special Model 1861 rifle. Based on the Pattern 1853 design, it incorporated the S-shaped hammer and split barrel bands of the Enfield. Unfortunately, its components were not interchangeable with those of either the Springfield Model 1861 or the Enfield Pattern 1853. (NRA Museums, NRAMuseums.com)

The Colt Model 1855 rifle was essentially a scaled-up Root revolver, being a five-chambered caplock weapon, which in the military rifle held five .56-caliber conical bullets. The design utilized the same sidehammer action as the revolver, but had a 37½in barrel. It was indeed a well-finished and quite handsome weapon, but it was virtually the only revolving longarm in production at the outset of the Civil War, and there was a very good reason for this. Percussion revolvers were notorious for their tendency when fired to spit slivers of lead from the gap between the





A schematic drawing of the Colt Model 1855 rifle, showing the different types of bullet, from picket (left) to heavy, solid-bodied military (right). Smaller-caliber examples of this rifle had a six-chambered cylinder. For sharpshooting use the Colt Model 1855 did not have the range of the other longarms available – and worse, it was extremely slow to load once empty. In 1862, one scout detachment of Berdan's men, expecting to be relieved, heard what they believed was the advance of their men, and unloaded their Colt rifles by firing them. The scouts then realized the advance was from the direction of the enemy lines – and they were now carrying empty rifles which they had no time to reload. Fortunately, it transpired that it was indeed their relief, who had circled round them in error in the darkness. Thereafter the Colts remained loaded until the scouts regained their own lines! (Author's Collection)

chamber and the barrel. As a rule this was not normally dangerous to the shooter, who held the revolver at arm's length, but their habit of chain-firing – the simultaneous ignition of some or all of the chambers when discharged – most certainly was. On a small-caliber handgun this would be unpleasant, but rarely life-threatening, but on a large-caliber rifle, whose cylinder was within inches of the shooter's face and near the left hand, it was a different matter altogether. This tendency was potentially lethal, as Private Thomas Preston of the 2nd Regiment of United States Sharpshooters (2nd USSS) would write in 1862:

I have often seen the boys picking out pieces of lead from one another's necks and faces. Not long ago a fellow of Co. G was firing when three barrels [cylinders] went off at once, cutting away his forefinger and thumb. The Major was firing one not long ago when it burst. But still they say it is a safe gun. If the Sharps is poorer, we want it. (Preston 1936: 16)

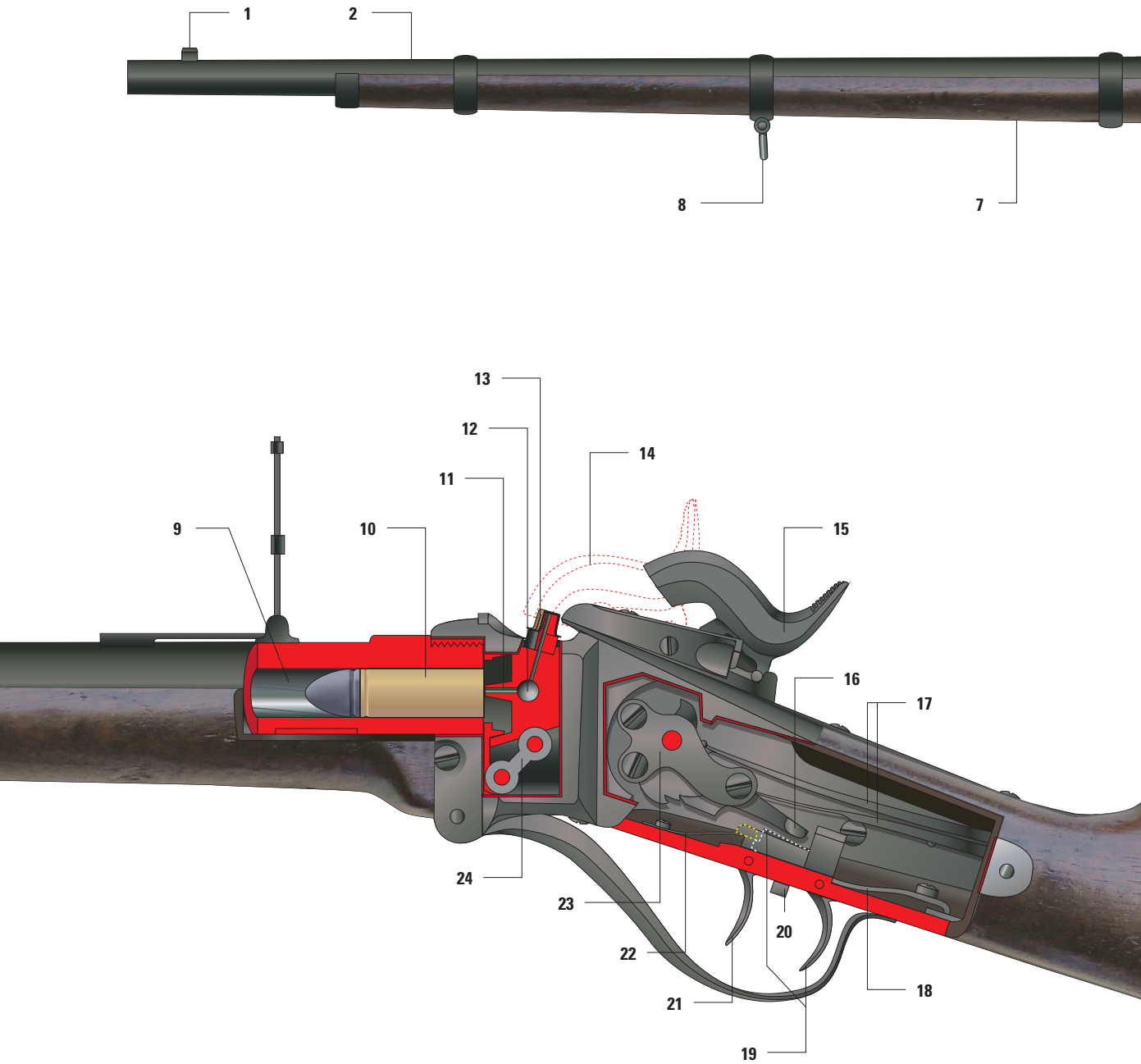
When the Colt Model 1855 was adopted for military use, various methods were used to try to alleviate the problems of chain-fire, meticulous cleaning being the best, and men were instructed to support their rifle with the left hand beneath the trigger-guard, or to use the lowered rammer as a handle. In fairness it should be said that the Colts were quite accurate out to medium range, and five shots were four more than a musket could deliver.

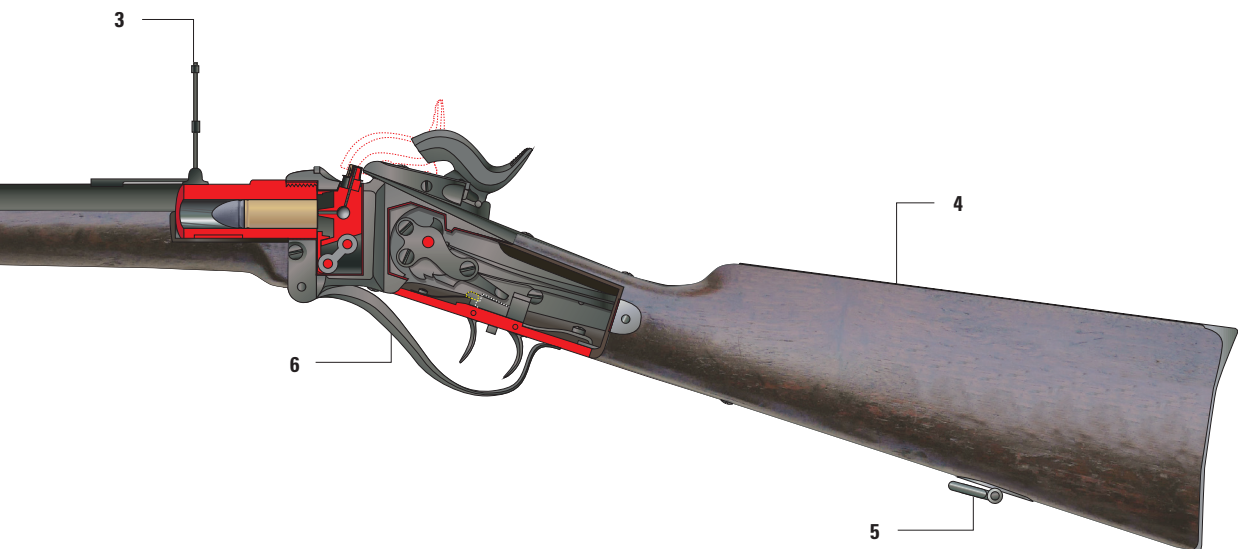
The Sharps

The Sharps rifle was the result of a design formulated in 1848 by Christian Sharps (1810–74) and was a single-shot caplock breechloader that utilized a simple but immensely strong falling-block action and which also employed the questionable Maynard tape priming system. From 1855, rather than

THE SHARPS EXPOSED

.52-caliber Berdan Sharps rifle





- | | | |
|-----------------------|--------------------------------|---------------------------------|
| 1. Front sight | 9. Rifled barrel | 17. Main spring |
| 2. Barrel | 10. Cartridge in chamber | 18. Set trigger spring |
| 3. Rear sight | 11. Ignition vent hole | 19. Set trigger (cocked) |
| 4. Buttstock | 12. Flash hole | 20. Trigger-pull adjuster screw |
| 5. Rear sling swivel | 13. Percussion cap over nipple | 21. Main trigger |
| 6. Lever | 14. Hammer (firing position) | 22. Main trigger spring |
| 7. Hand guard | 15. Hammer (cocked) | 23. Bridge |
| 8. Front sling swivel | 16. Sear | 24. Lever toggle link |

An early slant-breech Sharps with a Maynard tape primer in position, showing the roll of caps. It was a fragile system, vulnerable to damage and water, and was largely abandoned by the time of the Civil War. (Author's Collection)



using contractors, Sharps manufactured his own rifles in Hartford, Connecticut; the models went through several significant changes. The angled breech became vertical and the flawed Maynard system was replaced by a pellet priming system patented by R.S. Lawrence.

The Sharps rifles supplied to Berdan's sharpshooters at first glance appear identical to the rifled musket version purchased by the Army, but the majority of these sharpshooter rifles differed from standard examples in having a factory-fitted double or set trigger which provided the shooter with an extremely light trigger pull, typically 1½–2lb. The Berdan Sharps weighed 8lb 12oz and had a 30in-long round barrel that fired a combustible .52-caliber linen or paper cartridge loaded with 67 grains of powder. This propelled its 475-grain cylindro-conoidal bullet at a supersonic 1,400ft/sec. Although the ladder-pattern rear sight was calibrated to 900yd, the bullet was capable of considerably greater range, as will become evident later.



The Sharps mechanism opened, the breech-block lowered ready to accept a cartridge. When closed, the sharp edge of the breech severed the linen of the cartridge, exposing the powder. (Author's Collection)



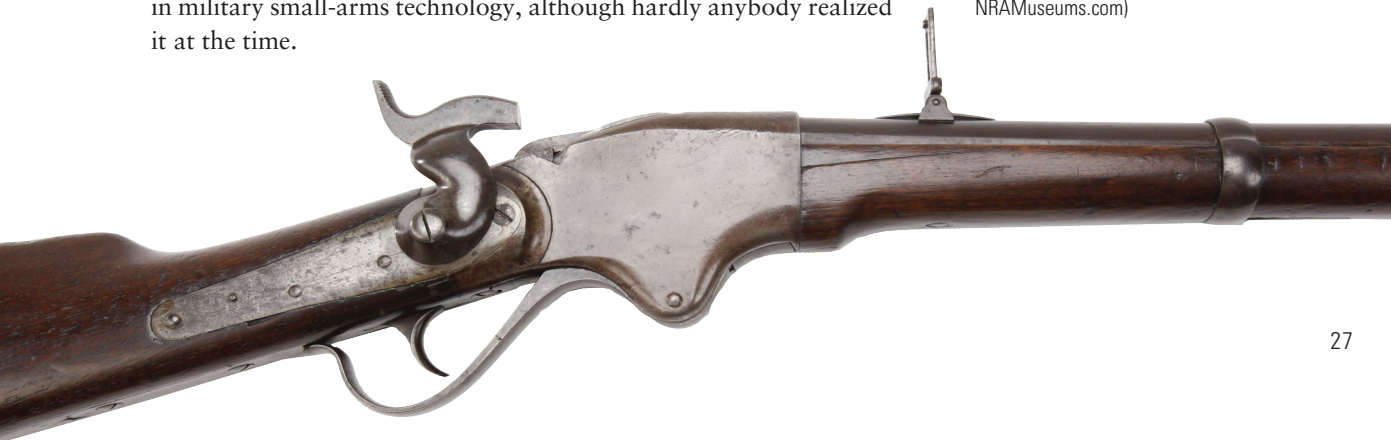
The Spencer

Although never designed to be a long-range rifle, the advanced design of the Spencer cannot be ignored, if for no other reason than it was the first breechloading cartridge rifle ever adopted into US military service. It was used in large numbers on the Civil War battlefields by the infantry, cavalry, and also some sharpshooter units. The brainchild of Christopher Miner Spencer (1833–1922) of Connecticut, a brilliant engineer and inventor, this innovative lever-action repeating rifle was designed in 1859. It was an unusual configuration, having a rolling-breech mechanism, fed by a tubular magazine in the stock that held seven .56-56 (actually .52in) rimfire cartridges; the rifle had a 33in barrel. The Spencer was unusual in having a sidehammer, back-action lock; while the lever action chambered a fresh cartridge, the hammer had to be manually cocked for each shot, but in skilled hands it could be fired at a rate of 14 shots, or two magazines, per minute. Not for nothing was it referred to as “The horizontal shot-tower.”

In 1859 the Spencer was just one of a plethora of different types of newly designed rifle available and had war not broken out, it may well have vanished from history. After 1861, however, the urgent requirement for rifles was to change all that. Tests at the Navy Yard, Washington, DC in June 1861 convinced Commander John A. Dahlgren (1809–70), the influential commander of the US Navy’s Ordnance Department, of the superiority of the Spencer and an order was placed for 700 rifles. Curious about the Navy’s interest, the Army tested the Spencers in November, and they performed almost faultlessly, firing 500 rounds nonstop with no interim cleaning required. This convinced the Ordnance Board of the military value of the Spencer, so in December 1861 an initial order was placed for 10,000 at \$40 each (\$856/£696 today); in total, some 200,000 were manufactured. The Spencer was to prove a game-changer in the development of military firearms, and its use was to herald a new era in military small-arms technology, although hardly anybody realized it at the time.

A .52-caliber, seven-shot Spencer repeating rifle. Although it was never produced as a sharpshooter’s weapon, several units carried it as its firepower was unparalleled and its accuracy at medium ranges was acceptable. (NRA Museums, NRAMuseums.com)

The breech of the Spencer. The tubular magazine was held in the butt and it could be fired at 15–20rd/min. (NRA Museums, NRAMuseums.com)





Many sharpshooters enlisted carrying their own rifles. These are fairly typical of the caplock types commonly found. Above is a half-stocked Hawken of the type carried by Birge's Western Sharpshooters, while the lower is a full-stocked plains rifle by Horace Dimick (1809–74). As the Civil War progressed, fewer and fewer of these rifles remained in service. (© Royal Armouries XII.2754 & XII.2756)

Plains rifles

Some units carried unique rifles for sharpshooting; for example, the men of the 66th Illinois Volunteer Infantry, known as Birge's Western Sharpshooters, were initially equipped with very accurate, half-stocked plains rifles. Already becoming anachronistic by 1861, these longarms had been specially commissioned from gunmaker Horace Dimick (1809–74), but by 1863 their shortcomings were so apparent that the men of the regiment armed themselves, at their own expense, with the new 16-shot Henry repeating rifle. This was perhaps an unusual choice for sharpshooters, for the .44-caliber rimfire cartridge did not have either the range or accuracy of the long rifles, but the Henry compensated for this with its high rate of fire. Besides, the sharpshooters argued with some logic, most of their work was done at relatively close ranges, under 400yd, which was just within the capabilities of the Henry.

Heavy target rifles

There was another category of sharpshooting longarm used on both sides, although it was more prevalent in the Union Army, and this was a heavy target rifle of the type generically known as "bull barreled." On the outbreak of war, large numbers of men enlisted carrying their own rifles; these ranged from Revolutionary War heirlooms to the latest target rifles, and it was this latter category that became particularly associated with the sharpshooters. Most of these caplock rifles fired relatively small bullets, of between .36 and .45 caliber, and while their lighter bullets could not carry to the extreme range of the Sharps, they were deadly at medium ranges out to 600yd. Although these rifles were made predominantly for target use they owed their lineage to the heavy-barreled *Jäger* hunting rifles of the previous century, and a large number were regularly used before 1861 for hunting small game. They had increased in popularity in the early decades of the 19th century, as the sport of target shooting became more popular across America.

Heavy target rifles existed primarily in two forms: a lighter-barreled variant that weighed between 10lb and 15lb and a heavier model that could weigh as much as 35lb. Just prior to the outbreak of war, target shooting with these heavy rifles was placed on a formal footing when clubs developed specialist shooting matches for them at a fixed distance of 40 rods (220yd). Many of these rifles were fitted with a globe front sight, which was a thin metal cylinder that had interchangeable front-sight

elements comprising rings of differing diameter, dependent on the distance to be shot and the size of the bullseye. Rear sights were either an aperture type or a simple open iron sight, with apertures that could be adjusted to suit the shooter's eyesight.

Mechanically, these heavy rifles were almost identical in form, being caplocks with thick-walled barrels that provided resistance to the vibration that could affect accuracy in thinner-walled barrels. In theory this helped ensure that every shot was identically placed, assuming, of course, the ammunition was of a uniform quality. Rifling was normally gain twist of around 1:30 at the muzzle (a relatively slow twist; as higher velocities became possible, faster twists of 1:12 became more commonplace) and the bullets differed from those of the normal musket, being of a type known as "Picket." Exactly where the name came from is much disputed; it has been suggested that it was because they were used by Army pickets, but this is highly unlikely as the bullet type was not a military Minié pattern, and their prewar use was exclusively confined to civilian shooting. A more plausible explanation is that their sharp points resembled a common picket fence-post. The bullet differed from the Minié in being relatively short-bodied and it was solid, not hollow based. It had a very small skirt to bear upon the rifling, and it was vital for accurate shooting that the bullet was loaded perfectly centrally in the bore, so a loading tool known as a "starter" was used, utilizing a tube that ensured the bullet was placed centrally in the bore. By the late 1830s this had evolved into a more complex "false muzzle" that was a piece of the barrel, up to 1½in in length, that had been cut off during manufacture. Four holes were drilled in the muzzle of the rifle and mated with pins inserted in the false section, so that when placed onto the rifle, it effectively formed an extension of the barrel. Its purpose was to ensure the bullet was inserted perfectly parallel into the bore and the rifling at the crown of the muzzle remained undamaged. Unlike the patches used with muskets, the picket bullets were paper patched as they provided the closest-possible fit for the bullet in the bore. It should be noted that elongated bullets were also used, many shooters rightly believing that they provided greater stability at long ranges.

A James & Ferris half-stocked heavy target rifle with full-length 'scope. Its deeply curved butt was a distinctive feature of the rifle, and helped steady the aim. When in use, the heavy rifle worked best when fired from a solid rest, but the use of a pair of crossed sticks, tied near the top to create a "V" rest, was simple and very effective. What was particularly distinctive about these rifles, however, was their almost universal use of a new scientific development: the optical, or telescopic sight. (NRA Museums, NRAMuseums.com)





USE

Sharpshooters in combat

RAISING THE SHARPSHOOTERS

Berdan's regiments

Understanding the organization of sharpshooter units during the Civil War, particularly those of the Confederacy, is complex and still not fully documented at the time of writing. For the Union, the situation was more straightforward: the two Berdan regiments, nominally comprising 2,000 men, were the first to be raised specifically for the purpose of sharpshooting and they served in that capacity throughout the war. The new units would form a separate branch of service within the standing army, and there was no geographical limit to joining. Normal practice in both North and South was to recruit from specific areas, thus for example the 10th Massachusetts or the 2nd Tennessee regiments would comprise men from local areas within those states. Conversely, the Berdan men were to be selected simply from those who proved to be the best shots.

The standards were high: a recruit had to be able to shoot, offhand, a sub-5in group at 200yd within the 10in-diameter circle of the bullseye. For a neophyte sharpshooter, it was a nerve-wracking time, as Charlie Fairbanks later wrote:

It was with fear and almost trembling that I took the rifle in hand to determine whether or not I was fit for a sharpshooter ... but after making the first shot at the ten-inch ring target, there was a cheer from the spectators, for I had put a bullet nearly in the center of the bulls eye, which was about two inches in diameter. The remaining nine shots were put inside the ring ... with a cheer from the crowd after each shot. (Quoted in Plaster 2008: 108)

Many enlisted from the New York area, and there were a high proportion of German, Austrian, and Swiss men among them, due in part to the influence of Caspar Trepp (1829–63), a Swiss former soldier who was also a competitive shooter and a friend of Berdan's. Indeed, so many applied that a second regiment was sanctioned and on August 2, 1861 Berdan was promoted colonel of the 1st Regiment of United States Sharpshooters (1st USSS), although to the delight of his men – who already harbored suspicions about Berdan's ability to command – the regiment was run on a daily basis by Lieutenant Colonel Frederick Mears (1826–92), a career soldier of great competence.

From the very start, Berdan's men were set apart by their practical green uniforms, reminiscent of those worn by their War of 1812 predecessors, but their main concern was the rifle with which they were to be issued. Exactly what determined Berdan's eventual choice of the Sharps Model 1859 is debatable, for he had tested the Springfield Model 1855 and wrote to the head of US Ordnance, Brigadier General James W. Ripley (1794–1870): "I have tried the Springfield rifle musket and much prefer it to anything I have seen and would like 750 of them for my regiment" (quoted in Sword 1988: 63).

Berdan had also seen some of the new Sharps breechloaders with which his recruits had enlisted, however, and he was particularly impressed with them. One venerable member of the 1st USSS, Private Truman Head – universally known as "California Joe" – had his own Sharps, a standard Model 1859 which Berdan examined and shot. Berdan was sufficiently impressed that he demanded (Berdan did not "request") a sample from the Sharps factory in September 1861 and then placed a requisition with Brigadier General Ripley for 1,000 rifles. There were a couple of problems facing him, however. First, Ripley had taken offense at Berdan's failure to collect the Springfields already allocated to him, and this new demand irked the brigadier general. Further, Ripley was, even by the standards of the day, very conservative in his attitude toward modern technology: "Many kinds and calibers of arms existed, none as good as the United States musket. This evil can only be stopped by positively refusing to answer any requisitions for new ... and untried arms, and steadily adhering to the rule of uniformity of arms for all troops" (Ordnance Report, No. 66).

In other words, nonstandard arms were not to be encouraged and troops would use what arms they were issued with by the US Government. One must have some sympathy for Ripley's point of view, though, for a Springfield rifled musket cost about \$15, while the Sharps rifle was \$42.50 (\$803 in 2016) inclusive of its bayonet, a considerable and additional expense on the war budget.



Colonel Hiram Berdan. (Library of Congress)

A recruitment flyer for the 1st USSS. Compared to the Maine poster on page 38, it is extraordinarily brief in its information. (Author's Collection)

1ST REGIMENT

BERDAN'S U. S.

SHARPSHOOTERS!

Lieut. Winthrop, detailed from Washington to recruit for this Regiment will

"SHOOT IN"

all who may apply, this day, in the field in rear of residence of S. Arnold Esq.

Shooting to commence at 8 o'clock, A. M. and at 2 o'clock, P. M. Saturday, 26, Oct., 1861.



A Colt Model 1855 revolving rifle. This rare example was one of the weapons originally supplied to Berdan's sharpshooters. (NRA Museums, NRA Museums.com)

Additionally, special-caliber combustible cartridges were required, adding another complex link to an already overburdened supply chain. If that was not enough, it transpired that the Ordnance had already contracted Sharps to supply some 6,000 cavalry carbines, which would fully occupy the factory's output for the foreseeable future.

The situation was not helped by Berdan's mercurial nature, for less than a month later, having vociferously championed the cause of the Sharps, he apparently decided that a better arm was in fact the Colt Model 1855 revolving rifle. What brought about this change is unclear, but Berdan was certainly close to Colonel Randolph. B. Marcy (1812–87), Chief-of-Staff of the Army of the Potomac and a personal friend of Samuel Colt. Possibly Berdan was influenced by the lengthy delivery time for the Sharps, or perhaps he was hedging his bets, but whatever the reason, for a man as well acquainted with firearms as Berdan, the choice of the Colt is hard to comprehend. Berdan's sharpshooters were universally unimpressed when in November 1861 their colonel arrived with a sample to test, Thomas Preston writing: "The gun he brought was a Colt's Rifle ... It was a splendid looking gun, but I think I should not like it as well as a Sharps rifle" (Preston 1936: 15).

Apparently heedless of the Colt Model 1855's dismal performance and reputation and the fact that, at \$45, it was almost the price of a Sharps, Berdan was determined to obtain the revolving rifle and used his connection with Marcy to persuade President Abraham Lincoln to endorse his request. Berdan was even prepared to go to Congress to obtain the required authority, provided the Colt factory could supply the 1,000 rifles he wanted with immediate effect.

On January 27, 1862, Colt received a presidential order for the purchase of the rifles. All this achieved was to muddy the waters still further between Berdan and Ripley, who quite reasonably objected to being bypassed by Berdan and wrote two days later to the President that he did not recommend their purchase and that the order should be canceled forthwith. Ripley's wishes were ignored, however, and the first 1,000 rifles were delivered to Berdan's sharpshooters in February 1862. Having set a precedent in getting authority for the Colts without recourse to Ripley, Berdan went so far as to leave the Chief of Ordnance completely out of further ordering processes by communicating directly with the Sharps factory, much to Ripley's fury, for Berdan had gone ahead with



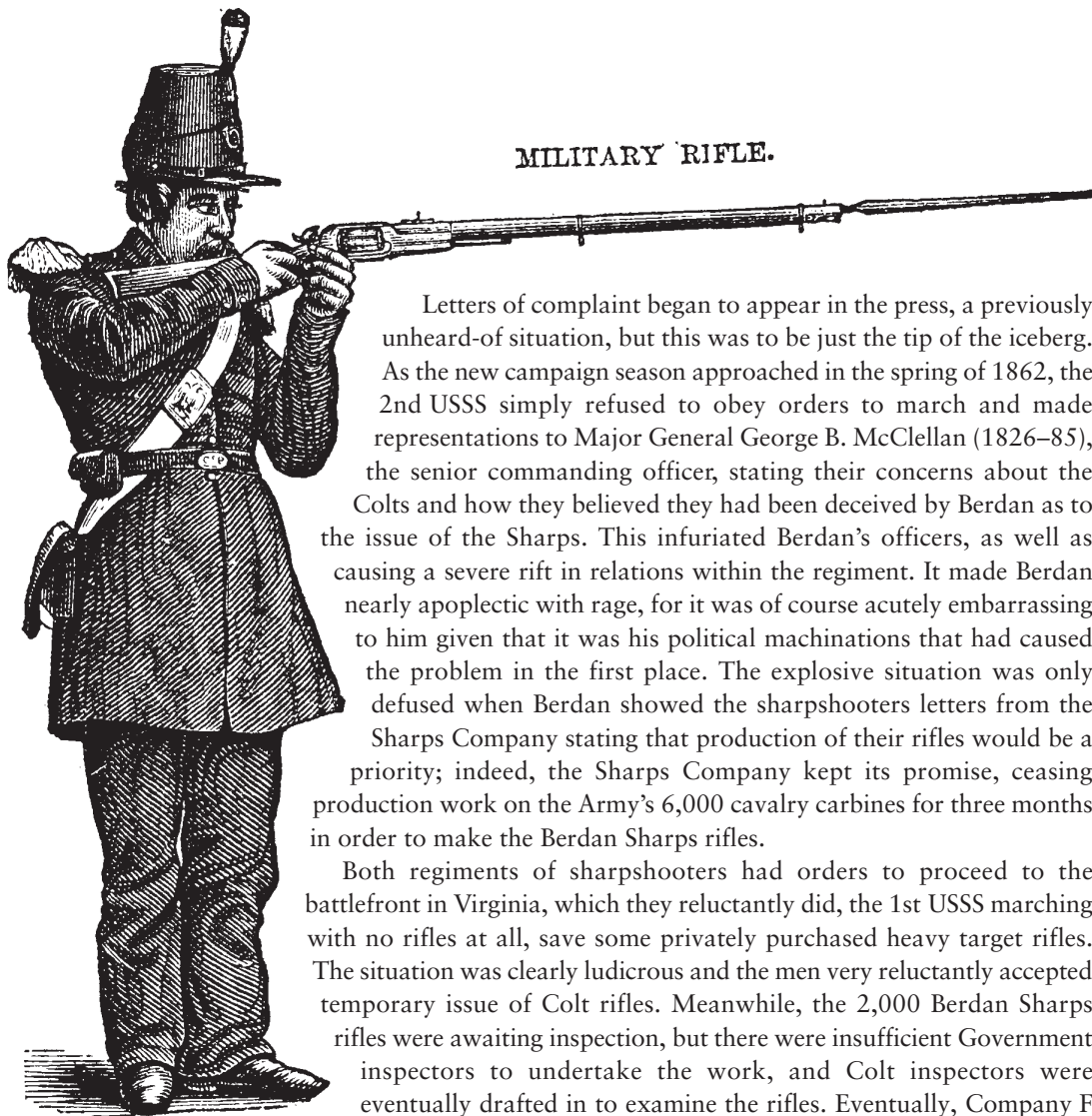
ordering 1,000 Sharps rifles for the 1st USSS, with a further 1,000 to be supplied for the 2nd USSS. He was aided to some degree in this by a precedent that had been set when standard Sharps Model 1859 rifles were commissioned by the Ordnance for supply to some infantry units, and, as the Berdan Sharps rifles (supplied with cheaper socket bayonets but with double-set triggers) would each cost \$43 – almost the same as the standard rifles – Berdan felt Ripley would be unable to rescind his order for the sharpshooting rifles, and in this he was proved correct.

The next problem that now raised its head was that Berdan's sharpshooters simply refused to use the despised Colt Model 1855 rifles. They were certainly not what the men wanted or had been promised when enlisting, and when the first batch were delivered to the 1st USSS early in 1863, they simply refused to accept them. The 2nd USSS were issued with them, but only until Sharps rifles were available. One disgruntled sharpshooter commented that the Colts took more care than a pair of horses, while another wrote that, while the Colt was a pretty rifle, it was "inaccurate and unreliable, prone to get out of order, and even dangerous to the user" (quoted in Preston 1936: 16).

The unusual sidehammer mechanism of the Colt Model 1855. The purpose of the two metal spurs was to aid grip. (NRA Museums, NRAMuseums.com)



MILITARY RIFLE.



A very interesting image from a Colt sales brochure of 1856. Clearly the company was aware of the problems of chain-fire, as the soldier depicted is holding the rifle with his left hand tucked underneath the frame, which is a poor method of steadying the rifle. (Author's Collection)

Letters of complaint began to appear in the press, a previously unheard-of situation, but this was to be just the tip of the iceberg. As the new campaign season approached in the spring of 1862, the 2nd USSS simply refused to obey orders to march and made representations to Major General George B. McClellan (1826–85), the senior commanding officer, stating their concerns about the Colts and how they believed they had been deceived by Berdan as to the issue of the Sharps. This infuriated Berdan's officers, as well as causing a severe rift in relations within the regiment. It made Berdan nearly apoplectic with rage, for it was of course acutely embarrassing to him given that it was his political machinations that had caused the problem in the first place. The explosive situation was only defused when Berdan showed the sharpshooters letters from the Sharps Company stating that production of their rifles would be a priority; indeed, the Sharps Company kept its promise, ceasing production work on the Army's 6,000 cavalry carbines for three months in order to make the Berdan Sharps rifles.

Both regiments of sharpshooters had orders to proceed to the battlefield in Virginia, which they reluctantly did, the 1st USSS marching with no rifles at all, save some privately purchased heavy target rifles. The situation was clearly ludicrous and the men very reluctantly accepted temporary issue of Colt rifles. Meanwhile, the 2,000 Berdan Sharps rifles were awaiting inspection, but there were insufficient Government inspectors to undertake the work, and Colt inspectors were eventually drafted in to examine the rifles. Eventually, Company F of the 1st USSS became the first unit of sharpshooters to be issued with the Berdan Sharps on May 8, 1862. More arrived and by June both regiments were equipped; the shipment of 200,000 cartridges was lost en route, although they were eventually located. At last, the detested Colts could be disposed of, one anonymous officer commenting: "The Colt five-shooters were turned in without regret" (quoted in Sword 1988: 79). Finally, Berdan's sharpshooters had the rifles they wanted and they were not disappointed, as one officer later wrote:

All's well that ends well. The new rifles were all that we could have wished for. Besides being easy and quick to load from any position, they fired accurately even at great distances. They were easy to clean and keep in good working order, and more than any other gun in the army they had the look of a weapon worthy of a sharpshooter. (Quoted in Sword 1988: 79)

Even men who carried their own target rifles were eventually persuaded to exchange them for the rugged Berdan Sharps, which says much about the high regard the sharpshooters had for its abilities. It was not simply the range and accuracy which, in the right hands, was in excess of 1,000yd, but the rifle's power. As one Confederate veteran subsequently wrote, because the bullets were initially supersonic, exceeding the 1,126ft/sec speed of sound, "the bullet got to you before the report, but if it was a muzzleloader the report got to you before the ball" (quoted in Sword 1988: 80).

There were other features that endeared the Berdan Sharps to the men. One of the major advantages that breechloaders had over muzzleloaders was the ability with the breechloader for the shooter to lie prone and reload, instead of awkwardly manipulating a ramrod, which was possible, but not easy, when lying down. The breechloaders could be loaded and fired at the rate of 8–10rd/min, a mixed blessing as sharpshooters often ran out of ammunition quickly, and frequently carried extra rounds in a second pouch. Indeed, during the battle of Malvern Hill on July 1, 1862, Berdan's sharpshooters had to be withdrawn from the field after expending all their ammunition. In an emergency the rifles could be loaded via the muzzle like an ordinary musket – provided a nonstandard .52-caliber ball could be found. The self-priming system used the cocking action of the hammer to place a pellet over the nipple and was a good idea as long as it functioned, but in wet weather it had a tendency not to work. It was little effort, however, to place a standard percussion cap on the nipple and most sharpshooters preferred the reliability of a cap. In the event of capture, it was the work of seconds to remove the locking pin from the receiver, drop out the breech-block and throw it away, thus denying the use of the rifle to the enemy – and being breechloaders, the rifles were easy to keep clean. In short, there was little to dislike about the Sharps.

BELOW LEFT

An anonymous Federal (possibly a Berdan) sharpshooter with his Colt Model 1855 rifle. This image has been reversed. (Library of Congress)

BELOW RIGHT

A well-armed private of the 2nd USSS, holding a heavy target rifle which, unusually, does not have a telescopic sight fitted, but the original globe and aperture sights are visible. (Library of Congress)





The bespoke rifle made by Marshall Tidd for Private Oscar Stevens. The 'scope elevation adjustment is by means of the vertical post, windage via the two round thumbwheels visible underneath the rear of the 'scope tube. (*Man at Arms Magazine*)

THE TIDD RIFLE

Identifiable sharpshooter's rifles are rare items, but the rifle illustrated here, in the author's possession, has a fascinating documented history. It was manufactured by Marshall Tidd (1820–1904), a gunsmith working from around 1846 in North Woburn, Massachusetts. His family was wealthy and he began making rifles out of interest rather than from economic necessity. He was described as "Industrious, frugal, and while displaying in his work more than ordinary mechanical genius, he was modest and unassuming" (Mowbray 2015: 14–15). Tidd was not interested in mass-production, refusing an offer to become superintendent of a nearby firearms-manufacturing plant, preferring to work alone and make rifles only to order, each being unique. If he did not want to make a rifle for someone, then no amount of financial inducement would make him do so. This particular rifle was ordered by a local Woburn man, Oscar Stevens (1839–1923), who enlisted with it in 1862 into the 5th Massachusetts Volunteer Infantry and served as a sharpshooter in battles including Kinston, White Hall, Goldsboro Bridge, New Berne, the relief of

Washington, and Wise's Cross Roads. He was mustered out due to sickness in July 1863 and returned home with his rifle, which he retained until 1890, when it was bought by a local collector.

The rifle is of .36 caliber with a 29in barrel and weighs 13lb. It has an unusually short telescopic sight of about 4× that had elevation adjustment on the rear tang and a screw windage-type adjustment on the front mounting. It is beautifully finished, but quite unostentatious; everything about it is practical and evidence of Tidd's attention to detail can be seen in the small screw underneath the barrel, which serves solely to retain the ramrod. Unusually, it retains all of its accessories, including the rear aperture sight, bullet starter, stripping tool, and a large number of picket bullets and patches. One unusual item is a homemade muzzle rest, which slides neatly over the barrel and holds it firmly in position, although whether this was manufactured by Tidd or Stevens is impossible to determine. Rather charmingly, the accessories are all kept in a battered but contemporary mahogany Colt revolver case.



The front 'scope mount, showing the swivel-screw that enables lateral adjustment without placing a strain on the 'scope body. The objective lens has a folding cover to protect it. (Author's Collection)



Original .36-caliber picket bullets for the Tidd rifle. (Author's Collection)



The accessories for the Tidd rifle. From top, clockwise: barrel rest, bullet starter, .36-caliber mold, cap pouch holding bullets, stripping tool, round paper patches, the original aperture rear sight, and picket bullets. (Author's Collection)



Loading the Tidd rifle. After powder has been poured into the barrel of the rifle, bullet and patch are placed in the muzzle (1). The cup on the bullet starter is placed over the rifle's muzzle, and the starter rod is used to push the bullet into the barrel (2). The starter rod pushes the bullet as far down the barrel as its length permits – about 6in – ensuring it is perfectly aligned in the bore (3). The bullet starter cup also prevents damage to the delicate crown of the muzzle. The rifle's ramrod is then used to finish seating the bullet firmly in the breech (4). (Author's Collection)

Riflemen, ATTENTION !

A COMPANY OF ONE HUNDRED MEN to be selected from the

BEST RIFLE SHOTS,

In the State, is to be raised to act as a **COMPANY OF SHARP SHOOTERS** through the War. Each man will be entitled to

A BOUNTY OF \$22.00,

When mustered into the service of the United States, and

100.00 DOLLARS

at the close of the War, in addition to his regular pay.

No man will be accepted or mustered into service who is not an active and able bodied man, and who cannot when firing at a rest at a distance of two hundred yards, put ten consecutive shots into a target the average distance not to exceed five inches from the centre of the bull's eye to the centre of the ball ; and all candidates will have to pass such an examination as to satisfy the recruiting officer of their fitness for enlistment in this corps.

Recruits having rifles to which they are accustomed are requested to bring them to the place of rendezvous.

Recruits will be received by

JAMES D. FESSENDEN,

Adams Block, No. 23, Market Square, **PORTLAND, Maine.**

Sept. 16, 1861.

Bridgton Reporter Press.—S. H. Noyes, Printer.



ABOVE LEFT

An 1861 poster for the recruitment of sharpshooters in Maine, offering a remarkable \$10,000 bounty on completion of service. (Author's Collection)

ABOVE RIGHT

A close-up of a group of Andrews Sharpshooters. They hold their 'scoped heavy target rifles, all of which appear to be of a similar pattern. (Author's Collection)

A Richmond Armory rifle, a Confederate copy of the Springfield Model 1855 rifled musket. This example was carried by James M. Rosser, 7th Virginia Infantry. (NRA Museums, NRAMuseums.com)

Other Union sharpshooters

Also seeing combat for the Union were the two companies of Andrews Sharpshooters. The first company was originally raised from Berdan enlistees, who, upon hearing they would lose their enlistment bounty if they joined his unit, formed their own, the 1st Company Massachusetts Sharpshooters, in September 1861. They were exclusively equipped with 'scoped, bull-barreled "heavy" rifles. A second company of Andrews Sharpshooters was attached to the 22nd Massachusetts Volunteer Infantry.

Because of the success of the sharpshooter units, many other Federal units were subsequently raised in June–July 1864 using men who volunteered from within the ranks of their own regiments and usually, but not exclusively, carried their own rifles; thus Daniel Sawtelle, who enlisted in the 8th Maine Volunteer Infantry, asked to become a sharpshooter and served exclusively within his unit. As there was no specific issue of rifles to these sharpshooters, Sawtelle was given a Spencer repeating rifle. Oscar Stevens, the owner of the Tidd rifle featured in this book, served with the 5th Massachusetts Volunteer Infantry and carried his own heavy target rifle throughout the campaign. Some sharpshooters,



notably of the 42nd Pennsylvania Volunteer Infantry – the “Bucktails” – were even given Berdan Sharps rifles that were languishing in stores, being at the time surplus to requirements, much to the chagrin of Colonel Berdan.

Confederate sharpshooters

The situation for the Confederacy was more complex. It has long been said that there were 16 sharpshooter regiments raised, but recent research has shown that in fact there were far more than this, with Confederate units also adopting the practice very early in the war of employing sharpshooter companies within their own regiments, who proved extremely effective, arguably more so than the Union units. The issue of rifles for these sharpshooters was difficult for the Confederacy for the simple reason that the choice was so limited. Tens of thousands of European rifles were imported, but few, if any, were of a standard suitable for accurate shooting. The preferred rifles were the Enfield Pattern 1853, the Springfield or one of its variants, and the highly prized but rare Whitworth. In many instances, Confederate sharpshooters simply used what they could until something better appeared, Enfields being the most sought after and plentiful, although Confederate sharpshooter Berry Benson noted in his memoirs that he picked up a discarded Spencer repeating rifle and used it until his supply of cartridges ran out.

The simple markings on the Richmond Armory rifle lock. Quality was not as good as that of the Union rifles, but these weapons were the mainstay of the Confederate forces. (NRA Museums, NRA Museums.com)





Confederate Fayetteville two-band rifle of 1862 made from parts captured at Harper's Ferry Arsenal. Externally crude, it was nevertheless serviceable and carried in considerable numbers by Confederate sharpshooters. (NRA Museums, NRA Museums.com)

TRAINING

As far as training for the sharpshooters was concerned, there was effectively a clean slate, for no previous wars had prepared anyone currently serving in the US Army for the need to recruit and train a large number of men in the mysteries of accurate shooting. Because sharpshooters were to perform a far more specific function than line infantry, but could also be called upon to fight in that role, their training was more complex, thorough, and difficult to organize. Many individuals regarded themselves, with some justification, as elite, and discipline in some units – notably the 1st and 2nd USSS – was notoriously lax. Physical fitness was paramount, so sports were encouraged, including, for the Berdan regiments, organized snowball fights in winter.

Sharpshooters had to learn two vital skills: skirmishing, the practice of fighting in an irregular, mobile, and open formation either as a vanguard, flank, or rearguard; and picket duty, which was defined in 1862 in General Order No. 69, from the Head-Quarters, Army of the Potomac, as keeping a

vigilant watch over the country in front, and over the movements of the enemy, if in sight, to prevent all unauthorized persons from passing in or out of the lines, and to arrest all suspicious individuals. In case of an attack, they will act as a line of skirmishers, and hold their ground to the last moment. If forced to retire, they will slowly close their intervals and fall back upon concealed in positions well in advance of their own lines. (Kautz 2001: 84)

One officer wrote that he believed picket duty was “above all others one that requires the most individual intelligence in the soldiers. A picket line, judiciously posted, in woods or swamps, will oppose a formidable resistance, even [up to] the line of battle” (quoted in Young 1878: 49). Both skirmishing and picket duty took nerve and discipline to be conducted effectively and meant that the sharpshooters were often the first to see and engage an enemy or give warning of their approach.

The Enfield two-band rifled musket carried by Confederate sharpshooter Berry Benson. (Augusta Museum of History)



Training was initially on an ad hoc basis. The Union sharpshooters used a series of War Department manuals, mostly translated from French originals, but also devised their own methods, especially for teaching vital skills such as range estimation. Commercial range cards using a scale and adjustable sliding bar became popular, but mostly it was a skill gained through endless practice. Fieldcraft and scouting were also taught, as was camouflage, although the latter was seldom practiced to any great degree. The Confederacy was fortunate in having some very experienced officers within its ranks such as Major Calhoun Benham (1831–1908) and Major General Cadmus Wilcox (1824–90), who drew up a manual of arms that was the equal of anything available anywhere in Europe, and officers who commanded sharpshooter units, such as Major Eugene Blackford of the 5th Alabama Infantry, who created the modern system of target marking signaling hits and misses, which dramatically speeded up the training process.

Any enemy soldier was a legitimate target, but sharpshooters were materially aided in their task by the practice of both infantrymen and officers wearing distinctive insignia. Union soldiers wore a circular brass badge on a cross-strap right above the heart, and both sides wore large brass belt buckles that caught the light and provided an excellent aiming mark. Soldiers also had a tendency to wear civilian clothing in bright colors (red checkered shirts were very popular) and there exist several accounts by sharpshooters on both sides identifying the position of an enemy rifleman due to a splash of color. David Champion of Company G, 14th Georgia Infantry later related that

I recall now, vividly, a Yankee in a ditch just in front of me, who wore a red coat and who seemed to be a particularly good shot. I pointed out the man to Captain Monger, who ordered me to kill the damned Yankee, I followed instructions ... held my fire until he raised up, took deliberate aim and fired. To my relief we did not see him again during the engagement. (Quoted in Yee 2009: 394)

The practice of wearing such conspicuous items diminished during the conflict, but never ceased entirely.

CONDUCT IN BATTLE

The sharpshooters normally worked alongside the infantry, often marching great distances in weather that varied from intensely hot to wet or bitterly cold. Sometimes they became so tired they fell asleep while walking, waking only when the column bumped to a halt, but regardless of their physical state, they were expected to deploy immediately, usually as pickets in small units of one or two companies ahead of the main attack, watching for movement or laying down covering fire on enemy positions to enable line infantry units to assault them. Often the sharpshooters' training and ability to think for themselves was tested to the limit, as they were normally out of contact with their officers.



Confederate sharpshooter Berry Benson, posing with his Enfield rifled musket. (Augusta Museum of History)

Volume of fire

One Berdan man, Private William King, later wrote a highly descriptive account of his part in the first battle of Cold Harbor (June 27, 1862):

We ... formed the line of skirmishers in the edge of the woods and then advanced down the hill ... and up the other side to the edge of the woods where we could see the approach of the rebels. The 'ninth' [Massachusetts Volunteer Infantry] was now drawn up behind us. We fought pretty much on our own hook, the officers being far to the right and the human voice was of no account. The rebels rushed down the hill in line of battle, but it wasn't quite so easy rushing across a swamp ... and as they tried it we fired Sharp's rifles at eight rods [44yd], firing as fast as we could put in cartridges, the distance being so short that aim was unnecessary. We couldn't help but hitting them and our vigorous fire held them in check for some minutes – minutes are hours at such a time – and they were thrown into disorder. (Quoted in Kent 1876: 32)

At one point, King's Sharps became so hot he was forced to stop shooting to let it cool. By choosing their position well, in front of impassable swampy ground and holding their fire until the last possible minute, the Berdan sharpshooters broke the Confederate charge with the loss to themselves of only one man killed and three wounded. During the battle of Gettysburg (July 1–3, 1863), both Union and Confederate sharpshooters created such a wide killing zone around themselves that it was impossible for any frontal or flanking movement to be made at all. A pair of

Berdan Sharpshooters in action (opposite)

A trio of Berdan's sharpshooters in their unique dark-green kersey-wool jackets and trousers. They were frequently employed as line infantry, so carried the same heavy field equipment as line soldiers: greatcoat and pack, water-bottle, socket bayonet, and Pattern 1862 cartridge boxes. Officers complained that this was too much equipment for sharpshooters to carry, but to little avail, so when in combat Berdan's men usually chose to leave behind anything that hampered quick movement. Extra ammunition was paramount, however, and up to 150 rounds could be carried by each man. Although the kepi shown was standard-issue headgear, as the war continued, many of Berdan's men adopted the wide-brimmed slouch hat, which provided better protection from the elements and more importantly shadowed the pale disc of the face, which was an easy target for Confederate sharpshooters.

What set Berdan's men apart were their special .52-caliber Berdan Sharps rifles, which superficially resembled the infantry Sharps rifles, but were fitted with double-set target triggers. A very few were also equipped with full-length telescopic sights, as shown on the center figure. These enabled the rifles to be fired with accuracy to well in excess of 1,000yd, something that could not be done with the standard ladder sight, which was graduated to only 800yd. Shooting from a covered position made the position virtually impregnable, as the breechloading Sharps could be fired at up to ten shots per minute. At Gettysburg, they created a killing zone so broad that no Confederate advance was possible on a frontage of almost 1,000yd.



regimental colors, highly prized souvenirs, remained stuck in the ground between the lines for the entire day, but any attempt to retrieve them brought immediate death.

This concentrated shooting was hugely demanding in terms of ammunition supply. Ordinarily, infantrymen could use whatever .58-caliber cartridges they could find on the battlefield, but sharpshooters with nonissue weapons, such as heavy target or Sharps rifles, were limited entirely by the quantity of cartridges they could carry. Indeed, at Malvern Hill (July 1, 1862) the Berdan sharpshooters had to be withdrawn from the line as there was no more ammunition available. Much of the shooting later in the war was done from trenches, where sandbags and loopholes were the only means of firing with any safety, but their presence was an open invitation for enemy sharpshooters to target them. As Daniel Sawtelle wrote, with experience, even loopholes were no longer protection from sharpshooters' bullets: "We had the range so well that we could put a ball into the hole nearly every time we fired. We often fired a hundred rounds in one day and seldom less than forty" (Sawtelle 2001: 118).

The offensive use of sharpshooters was rare at the start of the war, but gradually, as some senior commanders began to understand the most effective use of their unique skills and the best methods to employ them, they played a more proactive part in preventing enemy advances. Near Chattanooga the Union forces besieging the city used a single road to bring in supplies. On November 17, 1863, the Confederacy's Lieutenant General James Longstreet (1821–1904) deployed his sharpshooters, predominantly armed with Whitworth rifles, to stop the convoys. Their accurate and methodical fire tore apart the wagon trains, filling the road with dead and wounded men and horses and forcing the Union forces to use a much longer and slower route. Yet, even at the end of the war, many field officers complained that their sharpshooters were simply being used as glorified infantrymen.

The Spencer rifles were not solely confined to providing accurate fire, for the regiments armed with them were able to provide a level of firepower unmatched until the advent of the machine gun. At Chickamauga in September 1863, Union Colonel John T. Wilder (1830–1917) led a brigade of mounted infantrymen equipped with Spencers. They had already used the rifles to great effect, beating back attacks by rebels at long range, but the slaughter this time was unprecedented. Wilder later wrote:



A Union skirmish line moving forward while giving fire. It could break an enemy defensive position, but took considerable nerve and discipline. Constant forward movement was the key. (Author's Collection)



A dead Confederate sharpshooter at Little Round Top, Gettysburg. They inflicted terrible casualties on Federal troops during the battle and were eventually overrun by Berdan's sharpshooters. His rifle is a Springfield Model 1861. (Library of Congress)

As the rebels entered the field, in heavy masses fully exposed, the mounted infantry with their seven-shooting Spencer rifles, kept up a continuous blast of fire upon them. The effect was awful. Every shot seemed to tell. The head of the column as it was pushed on by those behind, appeared to melt away ... for though continually moving it got no nearer. It broke at last ... was rallied and came on again and with great resolution pushed through the solid fire into the ditch. Hardly a man got out of it alive. When the firing ceased, one could have walked for two hundred yards down that ditch on dead rebels, without ever touching the ground. (Quoted in Edwards 1962: 154)

Wilder added, a touch reflectively: "At this point it actually seemed a pity to kill men so. They fell in heaps, and I had it in my heart to order the firing to cease to end the awful sight" (quoted in Edwards 1962: 154).

Occasionally the men used their remarkable skills to the amusement of their comrades. When the opposing armies were facing each other in trenches during the stalemate that became the siege of Petersburg (June 9, 1864–March 9, 1865), there was a tendency for both sides to hold temporary unofficial truces to enable a multitude of small tasks to be performed; burying the dead, collecting water from the river, washing clothes, and so forth. One Union sharpshooter called across to a Confederate sitting enjoying a cup of coffee:

"I say Johnnie, time to get back into your hole." To which the reply "Alright" was made, but no movement followed. The sharpshooter called out "Just hold that cup still, and I will show you whether it is alright or not." A second later a bullet smashed the cup from the man's hand, sending him diving for cover to the laughs and applause of the onlookers. (Ripley 1883: 62)

EARLY OPTICS

"If you can't see it, then you can't hit it." This saying, common among shooters, was an undeniable truth, however, and although late-19th-century science was gradually making longarms more accurate, there was little point in producing 1,000yd rifles if the target could not be seen clearly. There will never be any consensus as to who produced the first practical telescope; usually that honor is attributed to Galileo Galilei (1564–1642), but there is evidence that primitive forms of magnifying lenses existed as far back as the Roman Empire. Some optical sights existed in Germany and Switzerland in the 1820s as their use was mentioned in reports of target matches, but exactly what form they took is a mystery. British Colonel D. Davidson (1811–1900), an observer in the Crimea and big-game hunter, wrote in the *Army and Navy Journal* in August 1864 that he had: "introduced [telescopic sights] to India some thirty years ago". It is quite possible that the 'scope type he was referring to was the product of an English gunmaker, but it is more likely that it was the result of work undertaken by the Scottish optical engineer John Ratcliffe Chapman, who was dissatisfied with the performance of existing 'scopes. These were generally fitted permanently to a rifle, being soldered in place and zeroed for a specific range with no ability to be adjusted for elevation. Chapman invented a saddle mounting that fitted to the front-sight dovetail and the rear mounting for an aperture sight. He described it thus:

The tube in which the lenses are fixed is three feet one inch long, 5/8th inch diameter ... weighing 10 ozs. It can be made very good out of sheet iron. To the front end a saddle of steel is firmly fitted and brazed, the object to be attained being stiffness for when fixed on the rifle, a discharge has the tendency to pitch it forwards and break out the dovetail. A

carriage is made to slide through the bead sight [front sight] dovetail, through which two screws pass into the saddle. Serving as an axis or pivot pins for elevation and depression. The back movement for elevating and depressing without taking out the telescope is designed to adapt itself to all ranges. (Chapman 1926: 29)

This simple but effective arrangement enabled both elevation and windage to be adjusted and Chapman, who by 1842 was residing in New York, began to have 'scopes manufactured by another gunmaker, Morgan James of Utica, New York. James began to manufacture Chapman-designed 'scopes and from 1845 to 1865 they were the best that money could buy, retailing at \$20 each, more than the cost of a Springfield rifle. Alas, Chapman failed to patent his design and the 'scopes were soon being copied, but this meant that they became widely available at a more reasonable price. Another engineer of Scottish descent, William Malcolm, based in Syracuse, improved on the traditional brass 'scope design by using cold-drawn steel tubing, which was far stronger than brass or brazed steel-bodied 'scopes, and his telescopic sights were also the first to use achromatic lenses. Previously, glass used for lenses was often full of impurities and when ground to shape provided the shooter with a clear center, but fuzzy, rainbow-hued edges; the power was, by today's standards, mediocre, often no greater than 2x. Malcolm's 'scopes gave a clear image and could be purchased at power levels advertised as up to 20x. These advances in optics provided target shooters and especially sharpshooters with an unrivaled ability to see and shoot at targets that were ordinarily beyond the vision of the average rifleman; all of this happened just prior to the outbreak of the Civil War.



A 'scoped percussion heavy target rifle manufactured by Abe Williams of Oswego, New York, c.1860. It weighs 24lb and has a Malcolm-type full-length 'scope. As the war progressed, increasing numbers of these heavy rifles were placed in storage, as more suitable ones became available. Because of the weight of the heavy rifles, they did not easily lend themselves to normal infantry use; they were simply too heavy to carry on long marches. At one point Berdan morosely complained that he had a wagonload of these target rifles which were of no practical use to anyone. They were fragile, being completely irreparable if damaged as no spares existed, and their telescopic sights were easily damaged. Many men carried their bull-barreled rifles throughout their service, however, and they played a significant part in the story of the Civil War sharpshooters. (NRA Museums, NRAMuseums.com)



ABOVE

The muzzle of the Williams rifle, with the false muzzle in place. The iron tab blocked the view of the 'scope, preventing accidental shooting with it in place. (NRA Museums, NRAMuseums.com)

BELOW

Detail of the elevation adjustment on the Williams rifle. Note the extremely small ocular lens, which would have given the shooter a very narrow field of view. (NRA Museums, NRAMuseums.com)

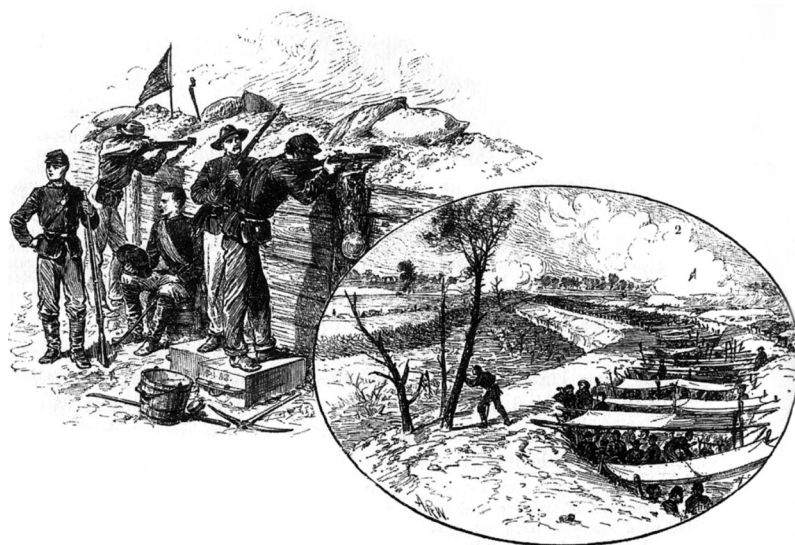


Long-range sharpshooting

Close-order shooting as described by Private King was not necessarily a normal state of affairs, though, for the ability of the sharpshooters' rifles to reach out to extreme ranges was one of their primary advantages. They were frequently used at distances well beyond that which the manufacturers intended. While in trenches in front of the Po River during the battle of Spotsylvania (May 8–21, 1864), some Berdan men were greatly irritated by a group of Confederate signalers who were manning a small wooden lookout post. The problem was the range, which was extreme. The sights for their Sharps rifles were only graduated to 800yd and the men estimated the distance to be in excess of 1,200yd. In order to reach the troublesome Confederates, the sharpshooters whittled small notched sticks that they secured to the rear sights of their rifles. While the sharpshooters' fire didn't actually hit the rebels, their bullets were close enough to cause them quickly to abandon their eyrie.

Despite the popularity of the Sharps, many Berdan men still carried their own heavy rifles, one wryly described by a comrade as "a small telescopic rifle, 'weighing only 32½ pounds' with which he made some remarkable long-range shooting" (quoted in Sword 1988: 42). These could justifiably be termed "special purpose" rifles, but the problem with them (or indeed with any rifle being fired at extreme range) was that they required very accurate estimation of the distance – a very difficult skill to master as anyone who has tried it will know. Observation of the fall of shot by a spotter is probably the best method, but this required time and an enemy who did not immediately go to ground, two prerequisites not widely found on the battlefield. Daniel Sawtelle wrote of shooting heavy rifles during the siege of Petersburg:

Those guns were very heavy, some of them weighing sixteen or seventeen pounds, with telescopes the whole length of the gun. With these sights one could see a ten-penny nail head half a mile away. We



There was considerable trench warfare during the Civil War, and here the artist has depicted a Union sharpshooter position at Petersburg in June 1864. It was dangerous work, as sharpshooters on both sides were capable of firing bullets through each other's loopholes. (Author's Collection)



were told later that some of these balls killed a man in the fort down by the river and out of sight of us. One could distinguish a man or horse but could not be sure of the mark over half a mile unless he knew the exact distance or he could have time to get the range by firing a few shots and watching where the ball struck. There were many of these rifles in our battalion, but they were so clumsy that they could not be handled quickly. We with the Spencers were always right up on the front line. (Sawtelle 2001: 133–34)

A much-reproduced illustration by Winslow Homer of a Union sharpshooter. Homer wrote afterward: “I looked through one of their rifles once ... the impression struck me as being as near murder as anything I could think of in connection with the army and I always had a horror of that branch of the service.” (National Gallery of Art, Washington, DC)

What is interesting about Sawtelle’s account is that it was already becoming apparent that there were distinct limitations as to the use of some types of sharpshooting rifles: the heavy target rifles, due to their requirement for careful ranging, began to be relegated to a “special requirement” status with certain sharpshooters detailed to use them, while repeating rifles, which may have lacked range, produced firepower that was of inestimable use. Thus two forms of complementary sharpshooting rifles were slowly emerging.

Sharpshooters versus artillery

Enemy observers were the least of the sharpshooters’ troubles, however, for it was the artillery that had long been the untouchables of the battlefield. They were placed far beyond the range of the old muskets and generally beyond that of even the new rifled muskets, and few soldiers had the skill to engage them at long ranges. The sharpshooters were a different breed, though. If proof were needed that it was the man, not the machine,

that was the most important element in shooting, there exist several accounts of Berdan men armed with the detested Colt rifles who were able to put them to good account against emplaced Confederate artillery. A squad of sharpshooters armed with Colts were employed to fire at the muzzle of a troublesome Confederate cannon to try to block it with lead (actually an effective means of spiking a large gun) and after 13 rounds had been fired, to everyone's surprise and satisfaction, the gun blew up. On very rare occasions the fire of sharpshooters could alter the outcome of a battle, as was evidenced during the battle of Antietam/Sharpsburg on September 17, 1862. In an effort to prop up the failing center of the Confederate line the 3rd Company, Washington Artillery was rushed into the gap, where it attempted to deploy. The artillerymen reckoned without the company of Andrews Sharpshooters, however, who were opposite them:

The 3rd Company were ordered into a broken gap ... in General Lee's line, where the enemy's fire was so withering that it seemed no living thing could stand before it. Five batteries had preceded the 3rd Company ... but the cannoniers had been killed or driven off. To prevent a repetition of this disaster, the last named battery drove to the fatal crest at a full gallop. Without halting ... the pieces were wheeled into position and in less than two minutes after, had opened a fire. This stopped, at this point, a breach in the Confederate line but in five minutes after, the enemy marksmen had shot down eight of the gunners and seventeen horses of the 3rd Company. The men were indeed picked off so fast that distinguished officers ... jumped down and assisted. (Yee 2009: 373)

After the fighting, one Confederate officer noted that "Most of the casualties in the artillery during the day were occasioned by Federal sharpshooters, who were posted in the treetops and behind stone fences, where with their long range guns and telescopic sights they picked off our officers and men, and horses with unerring aim" (quoted in Yee 2009: 373). This was not an isolated incident, for the realization dawned quickly among infantry commanders that having the ability to prevent the



An artillery battery under fire. Although moving targets were notoriously difficult to hit, sharpshooters sometimes resorted to effective volley fire to halt artillery or cavalry formations. (Author's Collection)



Pickets or small parties of sharpshooters were often placed in advantageous positions to snipe at the enemy. Here, Union sharpshooters firing from behind caissons take a steady toll on the Confederates, whose lines are clearly at no great distance from them. (Author's Collection)

deployment of enemy artillery was of crucial importance to the success or failure of a battle plan, and sharpshooters were often employed solely to deal with enemy guns. At Malvern Hill (July 1, 1862) the Richmond Howitzers, a Confederate artillery unit, faced sharpshooters for the first time, albeit unknowingly. As the guns were brought into line, a whole company of Union sharpshooters opened up on them:

Nothing however, could stand before that terrible storm of lead and after ten minutes of gallant effort the few survivors, leaving their guns in the open field, took shelter in the friendly woods. Not a gun was placed in position or fired from that quarter during the day. A member of the battery in describing it to an officer of the Sharpshooters soon after the close of the war said pithily, "We went in a battery and came out a wreck. We staied (*sic*) ten minutes ... and came out with one gun, ten men and two horses, without firing a shot." (Ripley 1883: 54–55)

Union sharpshooters at New Berne, March 1863 (overleaf)

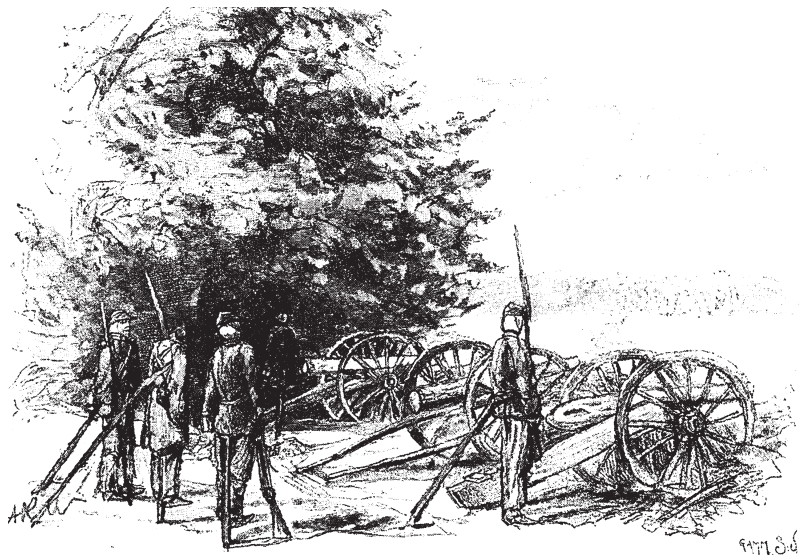
Sharpshooter units within volunteer infantry battalions were dressed in standard uniforms of a dark-blue sack-coat and sky-blue trousers (dark blue for NCOs), with a US-buckled waistbelt on which was carried a cap pouch and bayonet. The cartridge box, which could be one of several patterns, was worn slung over the shoulder, and the brass eagle badge which rested on the chest provided the enemy with a splendid target. Experienced sharpshooters either removed the badge, or covered it with the water-bottle strap.

Although they usually fought with issue rifles, many of these units also had companies of sharpshooters armed with special long-range bull-barreled target rifles, usually with telescopic sights. The 'scopes could not be focused at close range, and because the rifles required patched bullets, which were extremely slow to load, these heavy rifles were useless at repelling an assault or for close defense. The Army realized that these were a very specialized form of rifle, and so increasingly used them for specific sharpshooting tasks. Their accuracy made them legendary during the war, and firing from loopholes in their front lines, as depicted here, they were capable of placing every shot through the Confederate loopholes or artillery embrasures. Some sharpshooters said they fired 50 shots per day. The weight of the rifles meant that they were normally rested on a solid surface. The center figure is loading from a copper powder flask, as pre-prepared cartridges were not used.





To draw fire from concealed sharpshooters, many ruses were used. Dummy artillery units were set up in the hope the enemy would give their position away. It was a ploy that tended to work only once, on inexperienced sharpshooters. (Author's Collection)



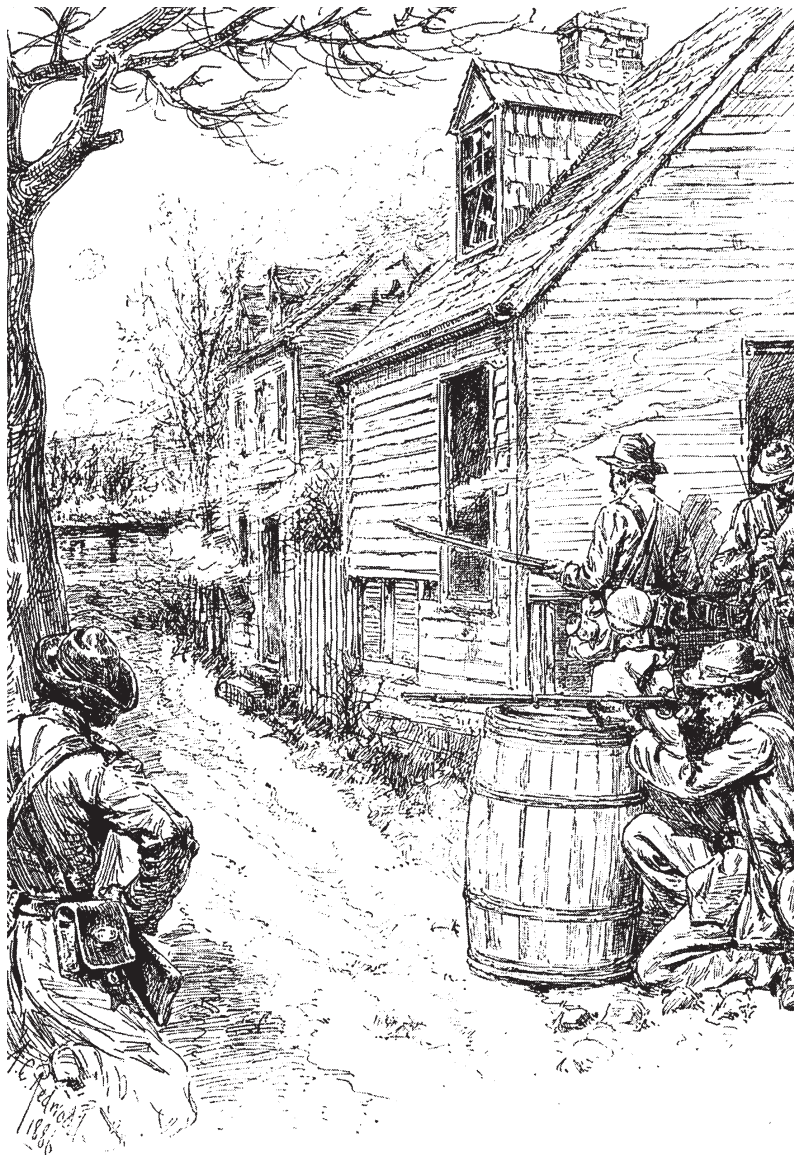
Sometimes a sharpshooter would conduct a personal crusade against a particular artillery piece. Private George H. Chase of the 1st Company, 1st USSS took offense at one rebel gun and crawled out a considerable distance ahead of his lines, settling himself in a suitable vantage place. He carried his own heavy rifle, a massive telescopic-sighted piece weighing 32lb, and for two days he drove off every attempt by the enemy to man or retrieve the gun. During the battle of Spotsylvania, Berdan's men took turns at preventing a Confederate battery of three guns from being manned, despite the best efforts of the gunners, who concealed themselves behind piled timbers. Their attempts to load their guns by reaching up to the muzzles to put powder or balls into them were met with such accurate fire that "the boys could send a Sharps rifle ball so completely in the muzzles of their cannon at this distance that they could not load" (Ripley 1883: 83).

At Bristoe Station on October 14, 1864, the 1st Company of Andrews Sharpshooters with their heavy 'scoped rifles were again instrumental in so completely driving off the crews of a trio of guns that they eventually rushed the position themselves and captured them, and two of the guns were put into Union service for the remainder of the war. Confederate sharpshooters often prevented the deployment of Union batteries; at Reams Station on June 29, 1864, the 10th Massachusetts Artillery deployed, but within an hour ten men were killed or wounded, including five officers, and so many horses were lost that there were insufficient numbers left to remove the guns from danger.

It wasn't always quite so effective, though: when the Palmetto Sharpshooters were ordered to attack a Union battery at the battle of Frayser's Farm (June 30, 1862), the order was misinterpreted and they made a frontal assault on the guns, capturing all six but losing 67 percent of their men in the process. The fight was not always one-sided, however: the use of canister shot was a very efficient method of dealing with sharpshooters as the steel balls ripped through undergrowth and trees, but

it was only effective up to 500yd, so wise sharpshooters stationed themselves beyond range. Sometimes the gunners had their revenge. When a lone Union rifleman was making life difficult for a Confederate gun crew, they retaliated:

A sharpshooter in a tall cypress tree got the range of Lieut. Hines' gun and with a globe-sighted rifle fired three shots. Our gun sergeant with his glass had located this sharpshooter by the puffs of smoke ... about a quarter of a mile away ... about fifty feet from the ground. He trained our gun, loaded with a twelve pound solid shot. After the report, no more shots were fired. Our solid shot had passed through the sharpshooter's body, cutting it nearly in two. (Quoted in Plaster 2008: 194)



Not all combat was in open country – fighting in towns became increasingly commonplace and the sharpshooter's ability to spot concealed enemy soldiers and snap-shoot was invaluable. (Author's Collection)



A Confederate sharpshooter with a Berdan Sharps, presumably captured on the battlefield. This photo has been reversed. (Library of Congress)

Countersniping

From the outset of the war, sharpshooters became engaged in what today would be termed “countersniping duties.” In the very first action involving the 1st USSS, during the siege of Yorktown (April 5–May 4, 1862), one of its soldiers, John S. Ide, engaged a Confederate sharpshooter at long range. Ide had one of the rare telescopic-sighted Sharps rifles and the duel was witnessed by many men on both sides. The Confederate rifleman was spotted in a tree and Ide was detailed to deal with him: “Several shots were exchanged between these men and it began to take the form of a personal affair which was watched with the keenest interest” (Stevens 1984: 55–56). Ide was in the act of raising his rifle to fire again when a bullet from the Confederate struck him in the forehead, killing him instantly. The affair did not end there, however, for Lieutenant Colonel William Y.W. Ripley, the regiment’s second-in-command, walked toward Ide’s body, in full view of the enemy, as bullets plowed into the ground around him. He picked up the dead man’s rifle and, having watched the whole event, decided that Ide had been shooting low, so raised the

’scope’s elevation by one notch. He took position and the enemy sharpshooter was engaged. As one eyewitness said later: “The man in the treetop was discovered, a quick aim and interchange of shots followed. Ripley escaped harmless as the ball spattered in the log building behind him. But the gray-backed fellow – well, there were no more shots from that treetop” (quoted in Yee 2009: 324).

It took patience to determine where an enemy rifleman was concealed, and the training the sharpshooters had in observation paid dividends. When a Union battery began to suffer heavy casualties from a well-hidden Rebel sharpshooter, a Berdan officer jumped over the log barricade with a heavy ’scoped rifle, and took up a position in a nearby copse, watching for the telltale puff of white smoke. The nearby soldiers heard a rifle shot, and the officer returned: “The story was short. He had swept the horizon with the telescope for a long time. Soon the wily sharpshooter, becoming tired, shifted his position. A pull and the bullet sped to Johnny’s heart” (Ripley 1883: 67).

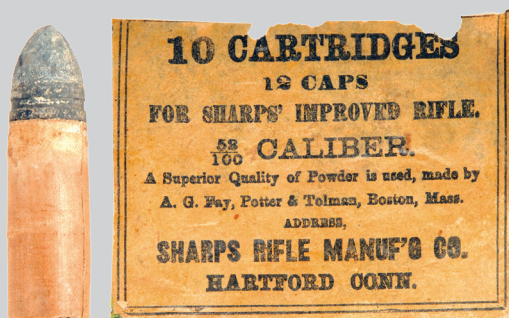
The sharpshooters soon learned the best methods for dealing effectively with an opposing rifleman, employing a number of ruses to attract fire that would pinpoint the location of the enemy rifleman. The use of dummies and sometimes even real bodies, or raising a hat on a stick or bayonet to draw fire became commonplace, and although this worked sometimes, the experienced sharpshooter would seldom fall for it. Indeed, such tricks sometimes had the reverse effect. One Berdan man, using a heavy ’scoped rifle, watched with great interest as a Confederate soldier carefully set up an elaborate dummy, then promptly shot him. Occasionally, men went to remarkable lengths to deal with troublesome enemy sharpshooters. At least one soldier, Corporal Follett Johnson

Rifle accessories

With the exception of the heavy target rifles, all other sharpshooting rifles were manufactured to accept a bayonet. These were invariably of the socket type and were put to use far more often than one would expect from specialized troops such as these.

The types of cartridge boxes carried were broadly similar; Federal sharpshooters would normally have the leather patterns of 1839, 1857, 1861, or 1864, and Confederates carried copies of these, or variations that were manufactured either by major arsenals, such as Richmond, or by one of the dozens of small leatherworking companies that existed in the South. Captured Union boxes were also used, particularly later in the war as the production ability of the South lessened. Berdan's men usually had infantry-type Pattern 1862 boxes, with four wooden blocks each drilled to accept ten combustible Sharps cartridges with between 20 and 100 more in a knapsack, dependent on circumstances. Sharpshooters using non-regulation rifles generally adopted whatever was suitable; the Tidd rifle featured in this book, for example, has a revolver ammunition

pouch for its picket bullets with it. One must presume that as these bullets were patched, these particular sharpshooters always used flasks to load their rifles, as pre-prepared ammunition was impractical.



An original Sharps ammunition box label and linen cartridge.
(Author's Collection)

(1843–1909) of Company H, 60th New York Volunteer Infantry, stood in plain sight of the Confederate lines to draw fire from a concealed rifleman, which enabled the regiment's own sharpshooters to spot and kill him. Johnson was deservedly awarded the Congressional Medal of Honor. While this was an act of almost suicidal bravery, it was believed at the time that the relatively slow speed of the bullets meant that a man with sharp eyes and quick reflexes could spot the telltale puff of the discharge and move before the bullet reached him (assuming, of course, it was not a supersonic bullet from a breechloader). Sometimes a little science was applied, with bullet holes in timber or earth breastworks having ramrods passed through to determine the angle from which the shots had come.

When the situation demanded, groups of sharpshooters were detailed to work in conjunction to deal with the enemy. At Gettysburg, Union sharpshooters were facing the sun and realized their muzzle smoke would be plainly visible to the group of Confederate sharpshooters well-protected in a nearby building. The Union men split into two units, one then volley firing on the enemy, who quickly moved position – straight into the sights of the second Union unit, who summarily dealt with them. Use of loopholes, steel plates, and concealed hides all became commonplace, one Union engineer officer actually manufacturing one-man wooden hides of logs with a steel frontal plate that could be set up anywhere along the lines. More often, though, the game was one of cat and mouse, with a pair of sharpshooters adopting the tactic of working together to identify and deal with a particularly troublesome enemy. Private Sam Watkins described how he and a fellow sharpshooter combined to deal with a Federal sharpshooter who had shot and killed every picket stationed at a

Berdan sharpshooters working as pickets, firing on advance parties of Confederates. They used any available cover, and frequently became targets for enemy sharpshooters themselves. It was work that required skill, stamina, and accurate shooting. (Author's Collection)



specific spot during the week. They waited for him to fire on them, which eventually he did:

We took our stands. A minnie whistled right by my head. I don't think it missed me by an eighth of an inch. Happening to glance up at the treetops, I saw a smoke rising above a tree ... We could see his ramrod as he handled it while loading his gun. Tom meanwhile had lain flat on his belly and placed his gun across the chunk [of wood] he had been sitting on. I had taken a rest for my gun by the side of a sapling ... finally we saw him sort o' peep round the tree, and we moved about a little so that he might see us, and as we did so, the Yankee stepped out in full view, and bang, bang! Tom and I had both shot. We saw that Yankee tumble out like a squirrel. It sounded like distant thunder when that Yankee hit the ground. (Watkins 1882: 82)

Sometimes, an unsubtle response proved the answer, particularly when a sharpshooter was well concealed in a dense tree line, a favorite but vulnerable location. When the 2nd Pennsylvania Reserves came under sustained fire from the trees in which Confederate sharpshooters were concealed, the whole regiment raked the treetops with volley fire, which quickly solved the problem.

Targeting officers

Officers were favorite targets for obvious reasons, and frequently easy pickings. They were easy to spot, did not tend to be as cautious as other ranks, and adhered strictly to the moral code of the day, which was never to exhibit fear in front of their men, and never to take cover, regardless of how dangerous the situation was. It proved a costly attitude. A prime example – and possibly the most celebrated, although perhaps for the wrong reasons – was Major General John Sedgwick.

Despite having been warned against visiting an area of the line known to be under Confederate sharpshooter observation, Sedgwick believed himself to be duty-bound to go, and walked up to a group of men who were taking cover from incoming sharpshooters' bullets, and gently admonished the soldiers for cowering from the fire. Nudging one with his boot, he famously said: "Why, my man, I am ashamed of you, dodging that way. They couldn't hit an elephant at that distance" (quoted in Ray 2006: 119). The man stood and apologized awkwardly to the general, but explained that dodging had already saved his life, which caused Sedgwick to laugh. At this point the whistle of another incoming bullet was heard. (Whitworth rifle bullets produced an unusual and distinctively shrill note.) Sedgwick's aide, Captain McMahon, wrote afterward: "For a third time, the same shrill whistle, closing with a heavy dull stroke, interrupted our talk, when I was about to resume, the general's face turned slowly to me, the blood spurting from his left cheek under his eye in a steady stream. He fell in my direction; I was so close to him that my effort to support him failed and I fell with him" (quoted in Small 1946: 137).

The killing of senior officers could, on occasion, alter the fortunes of one side or the other during a battle, as was evidenced at Gettysburg when the Union's Major General John F. Reynolds was killed by a single bullet to the neck, a typical shot indicating perhaps a slight misjudgment of range on the part of the shooter. His death caused such confusion that it enabled the Confederate forces to carry the day. Later on, in the fighting for Devil's Den, a Confederate sharpshooter killed Brigadier General Stephen H. Weed; Lieutenant Charles E. Hazlett, the commander of a Union artillery battery, ran to Weed's aid and was shot dead by the same man, falling on top of the dead general. A hundred yards along the line, Union Brigadier General Strong Vincent and Colonel Patrick O'Rourke both fell to sharpshooters' bullets. It was not a good day for Union officers at Gettysburg. Eventually, Berdan's men rushed the strongpoint and the Confederate sharpshooters surrendered, convinced they would be shot out of hand. They were greatly relieved to find their captors were also sharpshooters.

This illustration depicts the death of the much-respected Major General Sedgwick. His loss was a hard blow to the Federal forces, for he was well-liked and efficient, and several Confederate sharpshooters later came forward to claim the honors for the shot, including Ben Powell, Thomas Burgess, and Charles Grace, all of whom were working in the area at the time. There is no direct evidence that any were responsible for the fatal shot, however, and it is unlikely the true identity of the man responsible will ever be known. Alas for "Uncle John" Sedgwick, his comments have passed down as possibly the most inappropriate last words in history. (Photo by Hulton Archive/Getty Images)







Confederate sharpshooters at Spotsylvania, May 1864 (previous pages)

Lacking the manufacturing base of the North meant that Confederate units tended to be issued with a greater variety of arms and equipment than the Union Army. However, the South had a greater proportion of men who as civilians, had relied on their rifles to provide food for their families. Consequently, their Army had a greater number of excellent shots within it and when they were able to obtain good-quality rifles, they could often dominate the battlefield. Depicted here are four Confederate sharpshooters, in a variety of clothing, of standard gray or butternut brown – both practical colors for the battlefield – and a wide, practical choice of headgear.

The men at left and right have .45-caliber Whitworth rifles, with rare and expensive full-length telescopic sights. The Whitworth was normally only issued to the best shots in the regiment. Although its hexagonal bullet was slow to load, it was accurate to ranges of up to 2,000yd. The two men in the center both have Enfield Pattern 1853 rifled muskets, in .577 caliber. These were contract arms purchased by the Confederacy, made by commercial gunmakers in either London or Birmingham. Although not British military-issue rifles, their quality was excellent and while it did not have the range of the Whitworth, the Enfield was still regarded as the best available issue rifled musket. Accurate shooting to 800yd and more was not uncommon. Here, the sharpshooters are firing at advancing Northern troops, which materially slowed the Union advance.

The officers did not help themselves by trying to be inconspicuous, however, and sadly this was an attitude that prevailed, certainly in the US and British armies, until after World War I. At Lookout Mountain (November 24, 1863) an officer of the 102nd New York Volunteer Infantry named Gilbert Elliot led his men while wearing a cape with a bright-red silk lining. He was the first man to be shot in the engagement. Another, Major Carmichael of the 26th North Carolina Infantry, was less conspicuous, but he had a small Confederate flag (3in×4in) on his cap. A Union bullet entered his mouth and exited via his neck, a classic sharpshooter's shot.

Even the sharpshooter regimental officers did not escape unscathed. One of the greatest losses to befall the 1st USSS was that of their much-respected colonel, Caspar Trepp, during the fighting for Mine Run on November 30, 1863. Trepp was observing the line from a concealed position, when a rebel bullet hit the center of the red diamond sewn onto his forage cap, which provided an excellent aiming mark for the sharp-eyed rifleman. As befitted a founder of the Berdan Sharpshooters, he was carried from the field on a litter made of tied-together Sharps rifles. Sometimes when a senior officer was identified, uncommon tactics were employed. Union Brigadier General James A. Mulligan (1830–64) was spotted while observing the battlefield surrounded by junior officers. The problem was the range, which was in excess of 700yd. The rebel sharpshooters had a 30 percent chance of a hit at that distance, so seven of them settled down to take aim using the unusual, but effective, system of aimed volley fire. Mulligan was struck and killed.

Sometimes, however, the boot was on the other foot, for when the Confederacy's Brigadier General Evander M. Law was targeted by a Federal sharpshooter who narrowly missed his head, Law's immediate instinct was to fight back:

"Turning quickly, I caught a glimpse of something blue disappearing behind a pile of earth ... taking one of the muskets leaning against the works, I waited for the reappearance of my friend in blue who had taken such an unfair advantage of me." The sharpshooter reappeared and both men fired simultaneously, and missed! However, the sharpshooter made the mistake of assuming Law would need to reload, and committed the cardinal sin of standing in view as he did the same. Law grabbed another musket and shot. "He was found there, wounded when my skirmishers pushed forward" he later wrote with evident satisfaction. (Quoted in Ray 2006: 139)

One Confederate sharpshooter, Francis M. Ferguson of the 4th Kentucky Infantry, reportedly specialized in shooting only Union officers and accounted for 25 before he was killed by a bullet to the head from a Union sharpshooter. In total, 61 officers of both sides above the rank of major, including 13 brigadier generals and three major generals, were shot dead, as well as an incalculable number of junior officers, and many more were seriously wounded. During the battle for Fredericksburg (December 11–15, 1862) it was estimated that one quarter of the Union officers killed or wounded were as a result of deliberate targeting by Confederate sharpshooters. In terms of the loss of senior officers it was of course an appallingly wasteful method of fighting.

As a result of this unnecessary slaughter, as the war progressed junior officers at least became more inclined to wear ordinary privates' uniforms, but pride and military tradition normally prevented the higher echelons of command from changing their costly habits. The entire course of the war might well have been changed by a sharpshooter's bullet at Washington, DC in June 1864, when President Lincoln decided to see for himself the disposition of enemy forces near Fort Stevens, and despite the fact he insisted on wearing his trademark silk stovepipe hat he stoically refused advice to take cover from incoming fire, peering over the top of the breastworks with interest. The amount of fire being directed at him was evidence that at least some of the Confederates had recognized the wearer of the hat. Summoning up all his courage, a terrified Union officer took it upon himself to order the President to a place of safety, under threat of arrest if he did not do so. With good grace, Lincoln agreed, but the fate of the United States could well have been changed in an instant by one lead bullet.

A Union sharpshooter killed at Gettysburg, April 1863. His rifle is a Springfield Model 1855. (Library of Congress)





IMPACT

Sharpshooting – an assessment

TACTICAL IMPACT

The use of dedicated sharpshooters had an impact that was to have repercussions far beyond the battlefields of the American Civil War. High levels of casualties were expected in battle and many soldiers were not good shots, regardless of the quality of the rifles they carried. As the fighting continued, however, it should have rung some alarm bells within the higher echelons of command, that the nature of fighting was altering and linear-warfare tactics were becoming outmoded. This fact was not recognized for perhaps the first three years of the war and it was only after the colossal losses both sides suffered as a result of repeated mass frontal attacks that a slow reappraisal of battlefield tactics began. It was very gradually becoming clear that rather than rushing enemy positions in the face of heavy, accurate retaliatory fire, by deploying groups of carefully placed sharpshooters one side could force the other to take cover while an assault was launched, thus minimizing friendly casualties. How effective this tactic was can be glimpsed in an extract from a letter written by a Union officer of the 76th Ohio Volunteer Infantry during the siege of Vicksburg (May 18–July 4 1863): “Our regiment has been practicing sharpshooting at the rebel all the time, until they hardly dare to raise their heads above their rifle pits. Their artillery seems to be silenced as they have fired only a few shots for several days along the line” (quoted in Yee 2009: 644).

Using sharpshooters to cover a retreat was also a novel ploy, but one that worked unexpectedly well. The normal means of delaying an enemy advance while the main body retired had been to employ infantry in what was often a sacrificial position, as they were more often overrun by flanking enemy soldiers. With the careful placement of a company or two of sharpshooters, an advancing force was unable to close with the

retreating troops, being forced to seek cover at distances of 500–600yd and then bring its own sharpshooters up to try to deal with the problem; this often resulted in delaying the advance for several hours. There are many examples of this tactic being used successfully; when Union cavalry entered Hagerstown as General Robert E. Lee's army retreated after Gettysburg, they were met with such a hail of accurate fire from hidden Confederate marksmen that the entire Union advance was halted for a day, giving Lee's tired army a chance to escape. It must be admitted, though, that despite the increasingly effective use of sharpshooters, battlefield tactics of the Civil War did not fundamentally alter as a result, but the seeds were sown in the minds of many commanders that change was not only possible, but necessary.

A very visible example of this was the tactical change brought about by the use of repeating breechloaders such as the Spencer, which provided an unmatched level of firepower. Spencer-armed troops would fire a volley then wait, as a charge was the inevitable result, the enemy expecting no follow-up fire as soldiers reloaded, but as the enemy troops advanced they did so into yet more devastating volleys. This tactic was further refined by using mounted infantry to move quickly across the battlefield, dismounting and fighting on foot, delivering effective firepower where needed.

The practice of assault fire also began later in the war, the first exponent probably being Brigadier General George Custer (1839–76) whose Spencer-armed men successfully used their rifles to cover their advance during the battle of Trevilian Station in June 1864. Berdan's Sharps-armed men also employed similar tactics, being able to advance at Gettysburg while simultaneously loading and firing, a feat the rebels were

Although a poor-quality image, this is a rare contemporary photo of a Confederate sharpshooter, his rifle just visible. He would be almost impossible to see when concealed in heavy undergrowth or foliage. (Author's Collection)



unable to match. While this wasn't sharpshooting, it provided armies that were armed with the new rifles with an entirely new tactical concept. More importantly, it underlined the shortcomings of the muzzleloaders, and the increasing dependence that the Army had on breechloaders, a fact that did not escape comment at the time. When shortages of Spencer ammunition forced the reissue of Springfield rifled muskets to Union troops, the *New-York Tribune* of March 1864 reported on their subsequent defeat in Florida (at Olustee on February 20, 1864), commenting pointedly that "Dissatisfaction has been created among the men by depriving them of the Spencer repeating rifles and by issuing, in lieu, of this formidable weapon, Springfield muskets. Unable to protect themselves, one wing of the regiment gave way and could not be rallied, while the other wing, which retained its repeating rifles, maintained its position until its ammunition was exhausted" (quoted in Edwards 1962: 156).

If it had not been entirely clear to commanders before, by 1864 it could no longer be ignored that if they failed to deliver this new technology into the hands of their soldiers, they did so at their peril. The advantages of breechloading were by now too great to be ignored. In many respects, this is underlined by events after 1865. There were hundreds of thousands of surplus arms available, and most were sold into the commercial gun trade. There was a steady demand for the better rifled muskets as they were cheap, around \$5 for a Springfield, but foreign imports and smoothbores were virtually unsaleable and were mostly bought by companies who traded them with Native American tribes. Even then, the Native Americans often rejected them, expressing a preference for the new breechloaders. The Colt revolving rifles were offered for sale at one tenth of their original \$44 cost, but few people wanted them and they faded from history, resulting in their rarity today.

What could be sold in any numbers were the Sharps and Spencer. Curiously, of the two it was the single-shot Sharps that benefited most from postwar improvements in ammunition technology, as it could easily be converted to chamber more powerful centerfire ammunition. This usefully coincided with the expansion of the West and the need for feeding the frontiersmen and their families. Surplus Sharps longarms were used in huge numbers for hunting the great buffalo herds, and the Model 1869 and Model 1874 became renowned as "Buffalo rifles." The Sharps also became a very popular long-range target rifle, and the author knows of at least one original example that is still competitively shot at 1,000yd matches today.

The more complex Spencer suffered from mechanical weakness, though, for the breech mechanism was not easily adapted to take a longer, more powerful cartridge; although many were converted to chamber the .50-70 ammunition, it was an underpowered cartridge for military and commercial use. In addition, the pointed design of bullet then becoming increasingly popular was believed to be dangerous in a tube magazine, as careless handling could result in a magazine explosion, and the Spencer Company ceased manufacture in 1869.

There was, of course, also the vital matter of actually having the ability to hit a target repeatedly at long ranges. Advances in firearms technology



accelerated considerably during the Civil War and these continued after peace was declared. Lessons had been learned during the fighting; that the use of paper cartridges containing powder and ball was becoming archaic because speed of firing and accuracy did not need to be mutually exclusive. Rimfire ammunition as used in Spencers, Henrys, and many other rifles had proven to be effective, reasonably accurate, and – within the limitations of their modest propellant charges – suitable for sharpshooting. The way forward was clear: self-contained ammunition was where the future of firearms lay. It was reliable and more-or-less soldier- and weatherproof, and a loaded weapon could be carried indefinitely without problems, yet be ready for instant use.

There was also the vital matter of speed of loading, for the need to load a musket carefully meant that rifled muskets were still relatively slow to shoot, which made riflemen vulnerable to sudden attacks by cavalry or large numbers of infantry. This vulnerability was virtually eliminated if breechloaders were used, and totally eliminated if they were also cartridge-fed repeating rifles. The US Army was equipped with breechloading single-shot rifles by the 1870s and magazine-fed centerfire rifles two decades later. This advance was materially helped when black powder as a propellant was rendered redundant by the introduction of nitrocellulose powder from 1885. As a result, within 20 years of the Civil War ending,

Captioned as “A dead Union sharpshooter,” this man has an Enfield rifle lying next to him. Although photographers often moved bodies and weapons to get better pictures, the presence of this soldier behind a carefully constructed hide indicates he might actually have been a sharpshooter. (Library of Congress)



A Berdan Sharps rifle. This example was found some years ago in the western United States, which would indicate it traveled there with its owner postwar. The forend shows signs of considerable saddle-wear. (Author's Collection)

development of the centerfire cartridge had been perfected, and its subsequent worldwide introduction changed firearms technology forever.

If the senior officers of the Civil War armies were still unsure of the direction in which this new form of warfare was taking them, the men on the firing line were not. From their point of view, sharpshooting was deadly. The psychological damage caused by being shot at continually by someone who is aiming directly at you was not then fully understood. However, it was recognized during the war that it was exhausting for men to be under constant fire, as normal movement was curtailed and even ordinary tasks such as cooking food or obtaining water were fraught with danger. Soldiers were always prepared to take their chances against random projectiles, for the likelihood of being accidentally struck was extremely low. Indeed, becoming a casualty as a result of ordinary rifle fire was a remote possibility. Statistics from Gettysburg reveal that of approximately 3,500,000 rounds fired by the Union Army, Confederate casualties were 22,000 killed and wounded, which equates to 159 bullets per man to achieve a hit, each requiring a staggering 188lb of lead. In contrast, it is generally accepted that a sharpshooter hit his target with one in every two shots, and that hit was generally fatal as it was either a head or chest shot, which made their deployment extremely effective.

A Model 1874 Sharps. This model was made for the postwar commercial market, many from surplus postwar parts, and was used in large numbers in the West. With its precise Vernier rear sight it was a particular favorite for buffalo hunters and was chambered for several different large-caliber centerfire cartridges. It was nicknamed "Old Reliable." (NRA Museums, NRAMuseums.com)

The soldiers were all too well aware of this, and took extreme care not to expose themselves unnecessarily if sharpshooters were in the vicinity. One senior Confederate officer, Brigadier General Edward Porter Alexander (1835–1910), wrote after the war that "A terrible fire of sharpshooters was maintained upon both sides, which made life in our cramped and insufficient trenches almost unsupportable. Scarcely anywhere in them could one stand erect without being exposed to a sharpshooter ... Gibbon's single division reported 280 officers and men killed and wounded by sharpshooters between the 3rd of June and the 12th" (quoted in Yee 2009: 466). Private John Haley of the 17th Maine



Volunteer Infantry wrote home about the war-weariness felt by the men as a result of the incessant sharpshooting: “A feeling prevails that sooner or later this experience [being shot] will befall us all. So we have an indefinable dread, our nerves subjected to a continual strain we know cannot end until the war ends, or we are wiped out” (Haley 1985: 174). Indeed, sharpshooter Daniel Sawtelle was removed from duty late in the war due to nervous exhaustion, proof that the strain was the same regardless of whether a man was behind, or in front of the rifle.

Yet the attitude of the infantry toward sharpshooters remained both complex and contradictory; they frequently wrote that they detested the enemy sharpshooters, as evidenced by the rebel sharpshooters at Gettysburg, who were convinced they would be killed, while lauding their own, an attitude that would actually change very little over the next 150 years. There are many accounts of captured sharpshooters being given no quarter, and many went to great lengths to hide their distinctive rifles when capture seemed imminent. Yet by 1865 the sharpshooter units had become a vital part of the armies, carving for themselves a niche in history that would never be erased.

TECHNICAL IMPACT

The primary sharpshooting rifles fell into two categories: breechloaders, such as the Sharps, Henry, and Spencer, and muzzleloaders. At the start of the war, there was no delineation between the types; a sharpshooter was generally regarded simply as an infantryman, albeit with the ability to shoot well. As the war progressed, however, this attitude changed as it became clear to senior officers that there were sound tactical benefits for employing sharpshooters. Thus each type of rifle began to be used to its best advantage – heavy target rifles for static, long-range sharpshooting, the Sharps for sharpshooting and defense, and magazine rifles such as the Spencer and Henry for short-range sharpshooting and infantry assault – although this statement must be understood as a generalization. After 1865 and in the light of experience gained during the war the obvious question facing the Ordnance Board was, in what direction should they head in determining what rifle to adopt? Although muzzleloaders were still widely in use after 1865, the US Army had realized that in military terms, the musket had had its day, but there was still not a great deal of

After 1865, it was obvious that centerfire cartridges were the direction in which rifle technology was heading, and the Sharps Company was asked by the US Government to provide 1,300 rifles, converted to accept the new service .50-70 cartridge. Field trials showed the modified Sharps was not as efficient as the Allin-converted Springfield; consequently the Sharps was not adopted, and was declared obsolete in 1875. (NRA Museums, NRAMuseums.com)



choice where repeating arms were concerned, the Spencer and Henry being the two most competent.

The problem, in the Army's opinion, was that breechloaders were mechanically complex, expensive to manufacture, and more liable to fail, and it was believed that soldiers were apt to waste ammunition. The eventual decision was to adopt a single-shot breechloader, thus from the Army's point of view combining the best of all worlds. Regardless of type, the breech mechanisms of single-shot rifles were extremely strong, so capable of accepting the new .50-caliber military cartridge; they were easy and quick to load, and if a suitable conversion could be found, not overly expensive to implement. Unfortunately, it was this last requirement that ruled out the Sharps falling-block mechanism. Although almost indestructible, its manufacture required considerable machining and resultant cost, whereas if a single-shot conversion of the existing service rifle was adopted, thousands of otherwise surplus rifles could be used. So in 1865, with the dead of the Civil War barely buried, the first breechloading conversion designed by Erskine S. Allin (1809–79) was produced using the Springfield Model 1863 rifled musket. The conversion cost \$5.00, was simple and tough, and in the guise of the Springfield Model 1873, chambered for the new Government .45-70 cartridge, it became the standard service rifle, serving the US Army well for decades.

Yet even this was no more than a stopgap measure, for firearms development was forging ahead and repeating rifles were appearing in European armies with increasing regularity. By 1892, the US Army had to move with the times and adopt a bolt-action magazine-fed rifle, the .30-40-caliber Springfield Model 1892, based on the Norwegian Krag-Jørgensen design, and the age of the single-shot rifle finally came to an end. In time, this development would herald a new era in sharpshooting rifles.

An 1866 Allin centerfire conversion of a Springfield Model 1864. The button forward of the hammer unlatched the breech, which flipped upward to enable the cartridge to be inserted. The Allin was strong, reliable, and simple to operate and conversions cost \$5 apiece. Some 53,000 were manufactured. (NRA Museums, NRAMuseums.com)



SHOOTING THE SHARPSHOOTING RIFLES

Few people now have the opportunity to shoot any original examples of the rifles mentioned in this book. Some, of course, such as the Enfields and Springfields, are still plentiful and not overly expensive, but others such as the heavy target rifles and Berdan Sharps are now rare and extremely valuable. The author has been very fortunate over the years to acquire examples of many of these, as well as having the opportunity, through his museum work, to shoot examples of many other Civil War rifles, and be able to undertake empirical testing.

Sharpshooters, or indeed any soldier of the Civil War, had to use what was available, often casting their own bullets over an open fire using their own commercial molds, or shooting arsenal-manufactured ammunition that was of wildly variable quality. In tests reported in *American Rifleman Magazine* in the 1960s, some wartime-produced Spencer ammunition was measured. Although nominally .52 caliber, examples varied between .535 and .555 – and these were generally manufactured to what was considered at the time as a high standard (Edwards 1962: 154). Civil War-era shooting tests are often contradictory as well; one does not know under what circumstances the rifles were fired or whether, in some instances, the testing itself was partisan. For example, the Whitworth tests of 1857 showed that it placed all of its shots in a 25in-diameter circle at 1,000yd, but that the Enfield failed to hit the target at all. Yet the Enfield had a solid reputation at the time as a good long-range rifle.

So bearing this in mind, how accurate were these rifles, and what were they like to load and shoot? It should be remembered, of course, that the rifles used were original and past the first flush of youth, but we were able to use modern powder and carefully cast bullets. The muzzleloaders, such as Enfields, Springfields, and their variants, fall pretty much into the same category as far as loading and shooting go. To be accurate at anything other than short ranges (regarded as less than 300yd), they require careful loading and bullets that are uniformly sized. Physically loading them was reasonably easy, although increasingly hard on the ramming-hand after a few shots had begun to foul the barrels. By far the most effective stance for loading is for the shooter to be upright in order to pour the powder and ram the bullet and cartridge down the barrel. Loading when prone is possible, but very awkward, and unless one is careful, there is a tendency for powder to spill as the cartridge is torn open. Recoil is heavy, but quite acceptable, being of the “progressive-thump” type typical of black-powder arms, rather than the sharp kick of modern cartridge rifles, although it will bruise the shoulder after a dozen or so shots.

In fact, shooting the three-band Enfield Pattern 1853 and Springfield Model 1861 proved very interesting. Under 500yd the Pattern 1853 did not outshoot the Model 1861, each producing a ten-shot group of about 20in at 400yd, but the situation at 1,000yd was very different, bearing out comments made at the time about the superiority of the Enfield. In our tests and in the hands of a skilled long-range shooter (not the author) who was shooting from a rest, the Pattern 1853 proved capable of a ten-shot 42in group – while the Model 1861 could only place five shots into the 10ft target, all widely dispersed. It was also a surprise to find that the

The effect of a .577-caliber Minié bullet on a 5in post at 800yd. A human body would offer far less resistance. (Author's Collection)





A target rifle with a history. Originally manufactured as a late-pattern flintlock by Barnes of Boston, it was converted to caplock and then a full-length brass 'scope was added c.1850. Family history states it was used by a Kentucky sharpshooter. (Author's Collection)

two-band Enfield proved to be almost as accurate, perfectly capable of hitting a man's torso at 800yd, albeit with far greater dispersion beyond that. While it was capable of striking a target at 1,000yd, there was no measurable accuracy. Interestingly, the bullets at that range were still smashing through a 5in timber support, reinforcing the fact that they were still very lethal indeed.

An original Whitworth rifle proved to most interesting to test, albeit the hardest physically to shoot. The author can confirm contemporary accounts that it does have very heavy recoil, due to a combination of factors: relatively light weight at a shade over 9lb, a powerful powder charge of 90 grains, and a long, solid 480-grain hexagonal bullet. Contemporary testing states that the Whitworth could achieve a 12in group at 800yd, and 29in at 1,000yd, but a 19in five-shot group was achieved with the test rifle at 1,000yd.

The Berdan Sharps was also test-fired, although not at extreme ranges, out of respect for its condition (this was a well-used example) and high value, but bearing this mind, shooting it was still instructive. Using a pre-prepared combustible cartridge with a 60-grain charge and a 475-grain bullet, the rifle grouped five shots at 100yd at 2in. At 500yd, the maximum range tested, it opened up to 26in. I have no doubt that a modern reproduction would better this, but what was obvious was that blowback from between the breech face and chamber was very noticeable, and the ladder sights were actually quite difficult to use, having a very shallow "V" notch. The set trigger was a delight, letting off with a pull of just over 1lb, and the rifle is particularly comfortable to hold and shoot, lacking the slightly muzzle-heavy feel of the rifled muskets and having a very moderate recoil.

A heavy-barreled target rifle made by Barnes of Boston, with a full-length 'scope was also shot. Some compromise had to be made with this .40-caliber rifle, as a picket bullet mold was not available, so a 110-grain patched ball was used with 60 grains of powder. In fact, so massive was the barrel that this charge could have been safely exceeded. There was no



real expectation of achieving anything like the accuracy attained by the contemporary sharpshooters; it was more a test to experience the rifle compared to other muzzleloaders. The 'scope seemed to produce magnification of only about 2x, with an incredibly narrow field of view. At 100yd, a good 1in, five-round group was achieved, so 300yd was then attempted. Surprisingly, the target rifle proved quite accurate, with a sub-6in group. Attempting to shoot beyond this distance raised an immediate problem, which was the thickness of the crosshairs, which would have virtually obscured a man-sized target at ranges beyond 500yd, and made sighting difficult, so it was not attempted. The weight of the gun, 14lb, meant that it was extremely easy to shoot, with almost no discernible recoil, but it had to be rested on a very solid surface. It also gradually

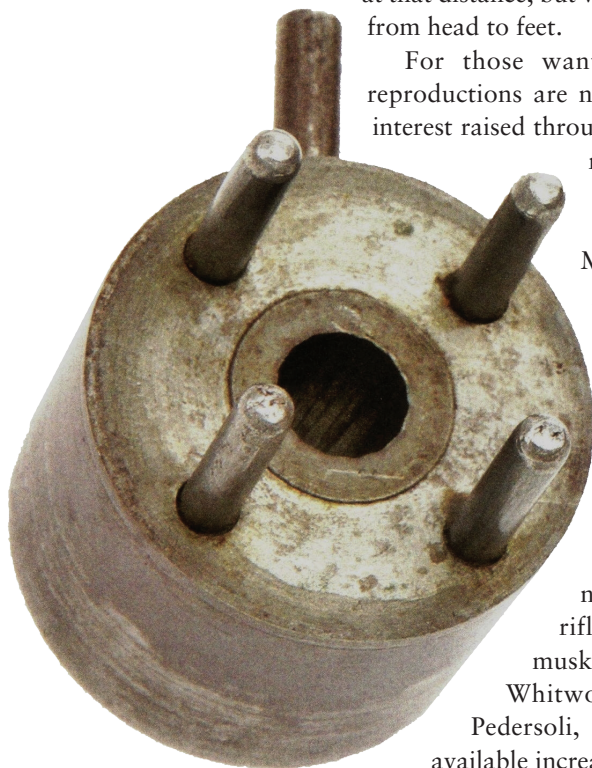
The mounting ring and adjusters for elevation and windage on the Barnes rifle. Although very precise, they were easily damaged. (Author's Collection)



The muzzle of the Barnes rifle, showing the four holes to which the false muzzle attaches. The front mount for the 'scope is spring-loaded to prevent recoil damage, and windage adjustment can be made using the dovetail block. (Author's Collection)



A typical false muzzle; the rifling can just be seen inside the bore. (Author's Collection)



became difficult to load with the thin cotton-patched ball, the culprit as always being the barrel fouling that built up.

Shooting some of the earlier longarms, such as a Springfield Model 1842, Hall Model 1841, and Model 1841 Mississippi rifle, proved a depressing experience. None was capable of any measurable accuracy beyond 300yd except the Mississippi, which could hit a man-sized target at that distance, but with bullet dispersion that ranged quite literally from head to feet.

For those wanting to experience shooting these rifles, reproductions are now widely available, in part because of the interest raised through their use in cinema and television, and the rise in historical re-enactment. Some idea of their popularity can be gauged from the fact that the use of a Sharps "Old Reliable" Model 1874 rifle in the 1990 Tom Selleck film *Quigley Down Under* resulted in a notable rise in demand for Sharps rifles that could not be met by the Shiloh Sharps Arms Company, which was manufacturing them in small quantities. This trend has continued and they have subsequently been produced in large numbers by the Sharps Arms Company as well as Italian companies such as Pedersoli and Uberti. Indeed, the Italian manufacturers now produce a huge range of replica Civil War rifles, from the Mississippi to the Richmond musket, Springfields, and Enfields. Even the rare Whitworth has been reproduced by Euroarms, Pedersoli, and Parker-Hale and the variety of models available increases yearly.



CONCLUSION

During the Civil War the Union Army was inchoate: there was no single service caliber, let alone one model of service rifle, ammunition supply was a nightmare, and it was almost impossible to field repair the many types of longarm on the battlefield. Adopting new rifles proved to be a tortuous, costly, and frustrating experience during the war, with both large companies and small manufacturers supplying a plethora of models. Parts interchangeability was still often only theoretical, but after 1865 these problems were gradually resolved as manufacture was placed with a small number of US Government arsenals, where strict quality control could be applied. The days of the small-production gunmaker had gone and mass-production had truly come of age. Arguably, this was one of the more successful outcomes of the Civil War, as the US Army finally had a high-quality longarm, made to exacting standards and as good as anything else in the world.

But there was a broader, strategic change wrought by the introduction of the rifle, and it altered the nature of warfare. Traditional linear tactics of warfare, with lines of opposing troops firing blindly at each other, were simply no longer feasible; the range and accuracy of the new weapons ensured this. In part this was due to the increasingly effective use of sharpshooters, whose performance on the battlefield began to provide senior officers with a glimmer of understanding as to exactly what could be achieved by companies of men who really knew how to shoot. After the Civil War, tactics changed as battles could no longer be won by the side that was best at standing its ground.

What of the sharpshooters themselves? Adopting rifled arms was a slow and reluctant process in the 19th century and the sharpshooters' employment as battlefield specialists was simply forced upon North and South by the use of the first such troops to be fielded, Berdan's sharpshooters. It was their effectiveness that subsequently forced the Confederacy to employ large numbers of sharpshooters, and this rippled

through the armies, as each side found it necessary to employ more sharpshooters to beat the enemy at their own game. It took one sharpshooter to deal with another and like any form of technology, human or materiel, neither side wanted to be left behind.

Even so, it is fair to say that the sharpshooters were, at best, regarded by the armies as a necessary evil. Despite the manuals that were written, the training given, and the experience gained, after the war much of what had been learned was forgotten, as sharpshooter regiments were disbanded, and men returned home, many of them carrying the rifles they had used so effectively during the conflict. There were repercussions however, for the more accurate centerfire rifles put into service from 1865 forced the US Army to take a more serious attitude toward effective rifle training, which before 1861 had been lax almost to the point of nonexistence. Military competition shooting became more popular and it can be honestly said that the next time the US Army went to war on a large scale, in World War I, its soldiers were trained to levels of shooting competency that would have been impossible to imagine during the Civil War.

Yet, even then, while there were many excellent riflemen within the US ranks, there were still no regiments of sharpshooters or dedicated sharpshooting rifles. Once again, the wheel had to be reinvented, but at least this time, there lingered a faint memory of what had been achieved during those tumultuous Civil War years. The Berdan Sharpshooters and similar sharpshooting regiments had become the stuff of legend and the Army realized, somewhat belatedly, that the sharpshooter (or sniper as he was now universally termed) was now a permanent feature of the modern battlefield. Although World War I ended before any significant numbers of American sniper units could be fielded, the lessons learned in 1861–65,

and the training that had evolved as a result, eventually led to the establishment of today's sniper training schools and the deployment of snipers as some of the most highly trained and efficient soldiers in today's armies.

As a postscript, it is interesting to note that during the Civil War, sharpshooting rifles themselves had eventually become split into two categories: those carried by infantry sharpshooters such as Springfields and Enfields, used mainly to support assaults or repel attacks, and other rifles, particularly the 'scoped heavy-barreled target rifles. These were employed only when required, usually for very accurate, long-range fire. This is exactly the case today, with trained infantry sharpshooters who carry modified service rifles to support their own units and police the distances left open between the infantry and their snipers. The large-caliber, long-range sniping rifles are employed to deal with targets beyond the capabilities of the sharpshooters. It does appear that the wheel has indeed come full circle. One cannot help but wonder what Colonel Berdan would have to say about it.

There are dozens of monuments to sharpshooters scattered across the Civil War battlefields, with the majority being at Gettysburg. This example commemorates the 1st Company, Massachusetts (Andrews) Sharpshooters. The rifle depicted is a 'scoped heavy target pattern. (Author's Collection)



GLOSSARY

BLACK POWDER	Also known as gunpowder, the most ancient form of propellant. It consists of a mix of 75 percent potassium nitrate, 15 percent charcoal, and 10 percent sulfur.
BLOWBACK	Gas escape from the gap between the face of a breech-block and the breech. It particularly affected falling-block rifles such as the Sharps.
BLOW-BY	The propellant gases that escape past an ill-fitting bullet. See also WINDAGE.
CAP	A percussion cap made of copper with a small fulminate filler.
CAPLOCK	A percussion ignition system using a nipple and percussion cap to ignite the propellant charge.
DOUBLE-SET TRIGGER	A system using two triggers; the rear multiplies the force of the trigger pull, providing the shooter with an extremely light trigger action.
FLINTLOCK	An ignition system using a sharpened flint held in the jaws of a cock, striking against a hardened steel plate to generate a spark.
FOULING	The sooty, corrosive residue left behind by burnt BLACK POWDER.
LEADING	The lead residue left behind in the bore of a rifle from the bullet. If left uncleaned, it adversely affected the accuracy of the projectile.
NIPPLE	A hollow tube screwed into the breech of a musket or rifle, upon which the percussion cap sits. The falling hammer strikes the cap and the resulting jet of flame ignites the main charge.
PERCUSSION	See CAPLOCK.
RETICLES	The vertical and horizontal crosshairs inside a TELESCOPIC SIGHT.
TELESCOPIC SIGHT	A magnifying sight mounted above the bore of a rifle.
WINDAGE	See BLOW-BY. It is also a term used to refer to the lateral adjustment of a TELESCOPIC SIGHT.



Confederate sharpshooters wait for a Union supply boat to come within range. The Mississippi River was an important supply route for Union vessels, and they often came under heavy fire from rebels stationed on the shore. (Photo by Culture Club/Getty Images)

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A detail of the troublesome Maynard tape priming mechanism of the Springfield Model 1855. (NRA Museums, NRAMuseums.com)



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the earliest Native American inhabitants through early Spanish exploration, the Civil War, and the Old West. For more information on the NRA Museums and hours, visit www.NRAMuseums.com.

Dedication

To my friend Roy Jinks, with my grateful thanks for keeping a 30-year-old promise.

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As always, I have relied on help from many people, and I would like to thank: Dr. Robert Maze and Peter Smithurst for the photographs they supplied; Stuart Mowbray for permission to use the image of the Tidd rifle used in the *Man at Arms Magazine* article; Fred L. Ray and Gary Yee, for their help and permission to use extracts from their splendid books; and Russ Young for sharing his extensive shooting knowledge. Also thanks to the National Rifle Association Museum, Fairfax, VA, and the Royal Armouries Museum, Leeds, UK for images from their extensive firearms collections. In addition, many collectors and shooters have happily passed on hard-learned knowledge and photographs to me over the years, which has been of inestimable value. Finally, thanks to Jacqueline Kimber for her help with some very troublesome images. Of course, any errors or omissions are entirely my own.

Editor's note

In this book linear, weight, and volume measurements are given in imperial units of measurement (yards, feet, inches, pounds, ounces, grains). Where imperial units of measurement differ from US customary, the former are used in the text. The following data will help when converting between imperial and metric measurements:

1yd = 91.44cm
1ft = 30.48cm
1in = 2.54cm
1lb = 0.45kg
1oz = 28.35g
1 grain = 0.002oz
1 grain = 0.064g

Front cover, above: A Sharps rifle issued to the 1st Regiment of United States Sharpshooters (1st USSS), immediately identifiable by its double-set triggers. This example shows heavy wear under the wooden forend, typical of a weapon carried by someone who was mounted, and was doubtless one of many thousands that saw heavy use in private hands after the Civil War. (Author's Collection)

Front cover, below: The famous painting by Winslow Homer (1836–1910) of a Union sharpshooter of the Army of the Potomac on picket duty. He is depicted in a tree, a favorite vantage point for Civil War sharpshooters. It was painted in November 1862 and has become one of the most iconic images of the war. (Author's Collection)

Title-page image: A well-armed private of the 2nd USSS, holding a heavy target rifle; unusually, it does not have a telescopic sight fitted, but the original globe and aperture sights are visible. (Library of Congress)